DRUG & COSMETIC INDUSTRY

OCTOBER, 1951

FEATURE ARTICLES • •

DURHAM-HUMPHREY COMPROMISE		458
LILLY SURVEYS THE DRUGGIST		460
SUN TAN PREPARATIONS	Harry Hilfer	462
REPORT ON VANILLA	Frank Child III	464
PRESCRIPTION BUSINESS	William T. Doyle	466
NEWER FUNGICIDAL PRODUCTS	Milton A. Lesser	468
PHARMACEUTICAL PRICING		470
THE NECESSITY FOR RESEARCH		472

DEPARTMENTS • •

KEEPING POSTED	Thomas R. Farrell	453
PACKAGING AND SELLING	Frazer V. Sinclair	475
DOIN'S		481
NEWS	Frank Child III	487
MANAGEMENT FORUM	Francis Chilson	500
PATENT THOUGHTS AND TRENDS	Thomas Cifelli, Jr.	508
ANIMAL HEALTH	Milton A. Lesser	511
READERS' QUESTIONS	Milton A. Lesser	515
COMPOUNDER'S CORNER	Milton A. Lesser	516
ADVANCING THERAPY	Milton A. Lesser	519
INDUSTRY'S BOOKS	Harry G. Kelbly	523
PERFUMER'S SHELF	Milton A. Lesser	524
ABREAST OF THE MARKETS	Frank Child III	527

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FRANCIS CHILSON, Production Consultant
MILTON A. LESSER, Technical Editor
HARRY G. KELBLY, Raw Material Editor
FRANK CHILD III, News Editor
MAX FRANKEL, Art Director

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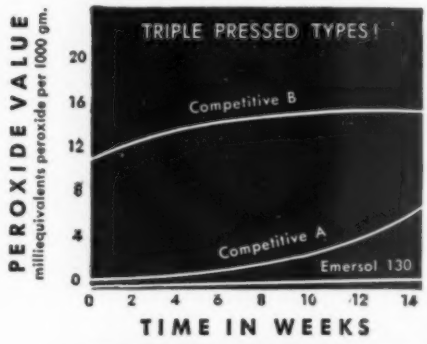

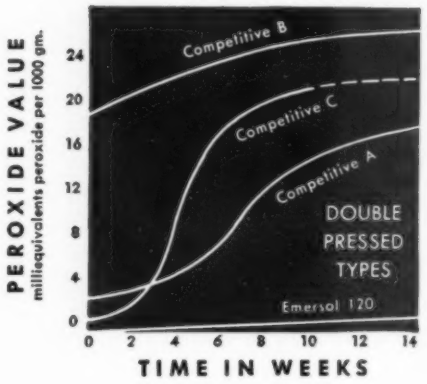

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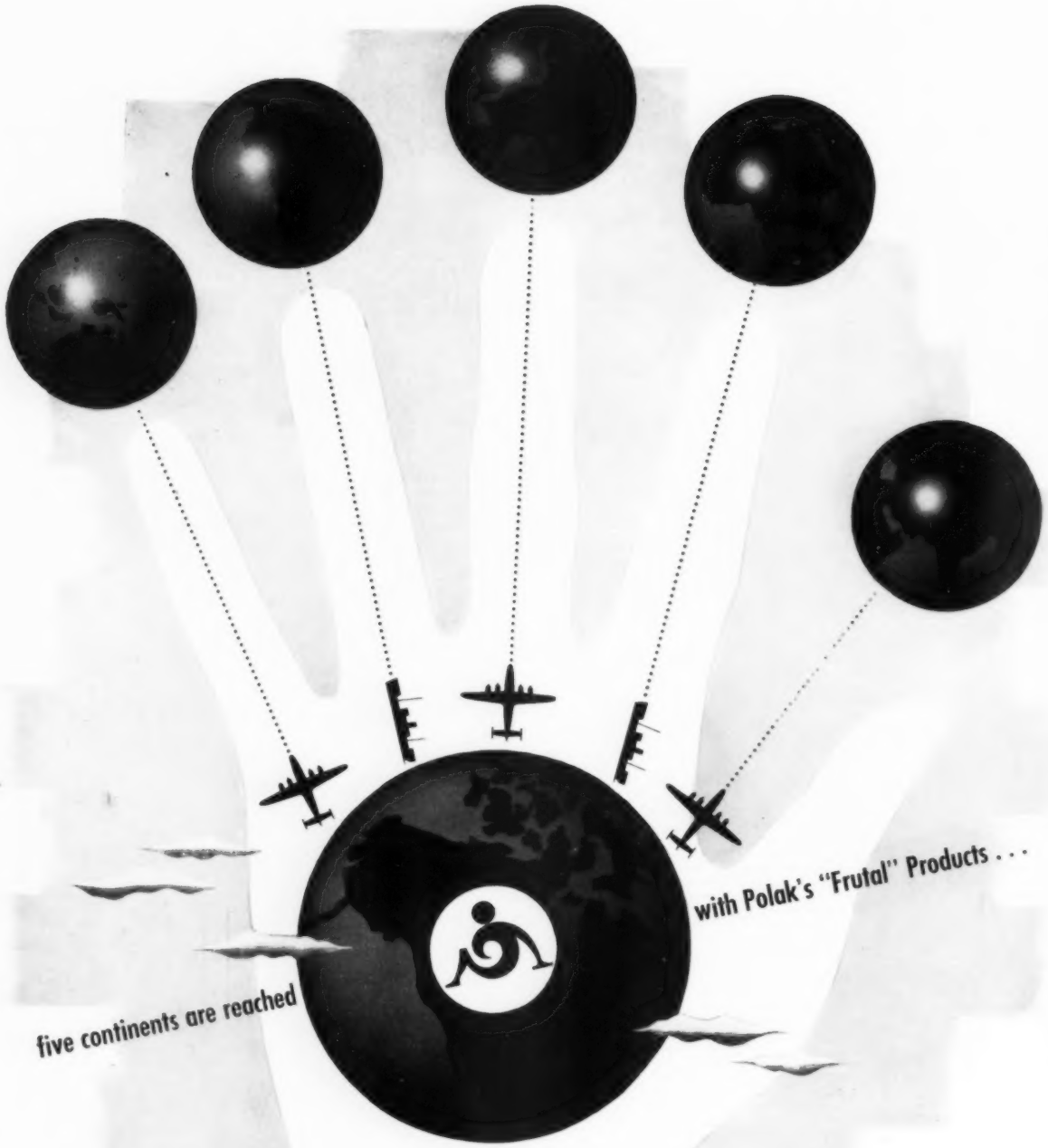

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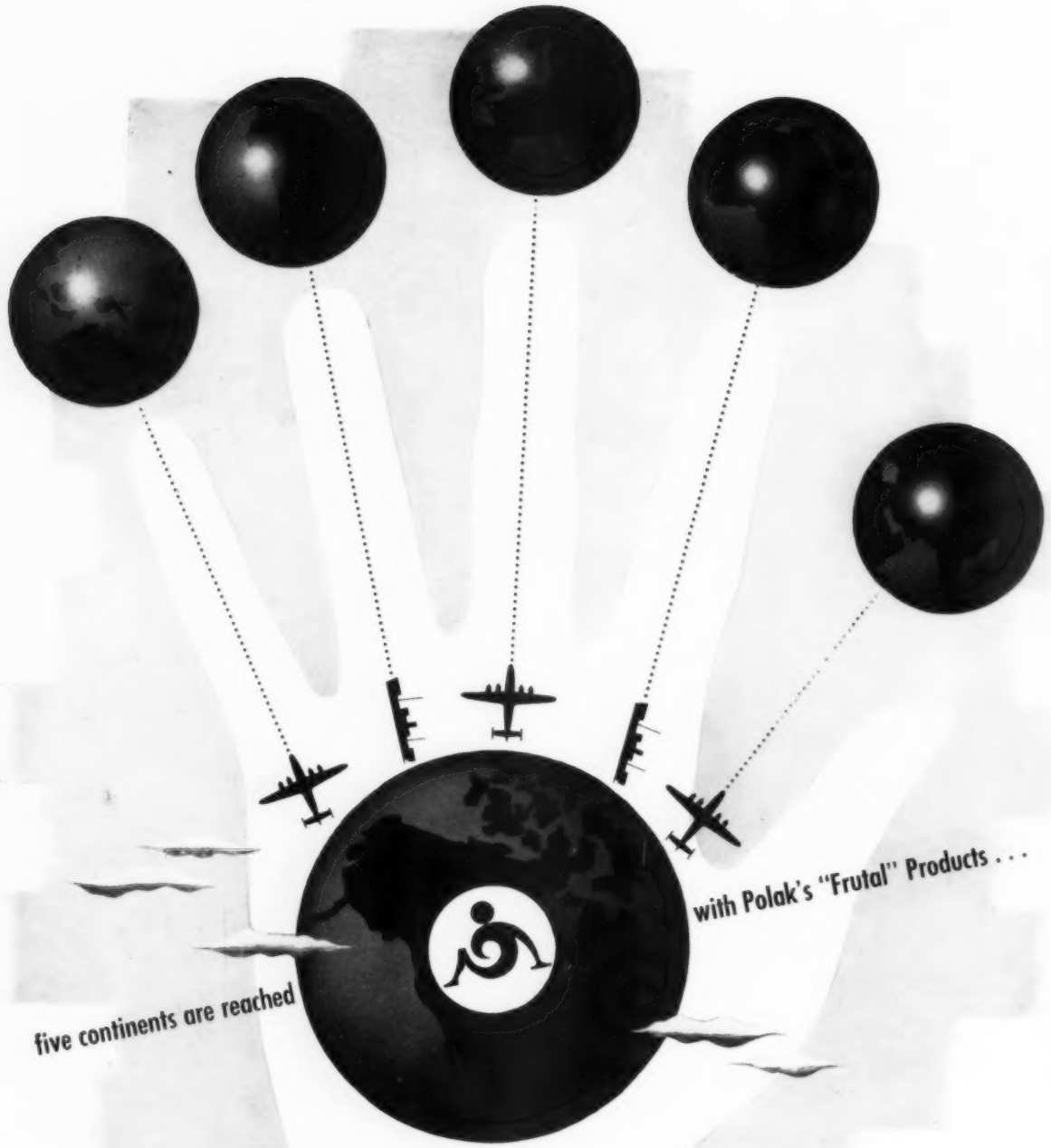

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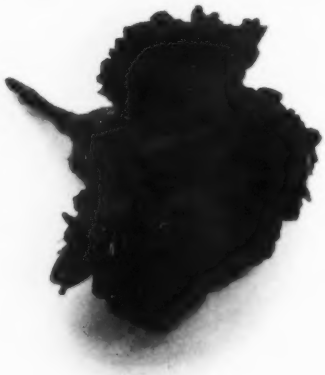

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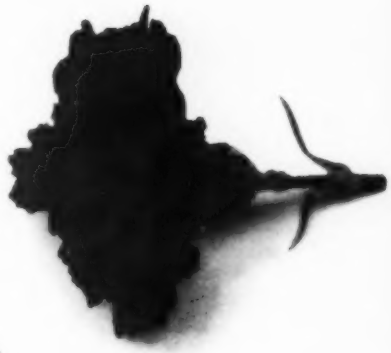

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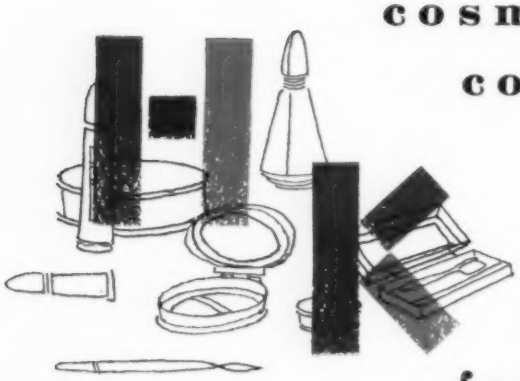

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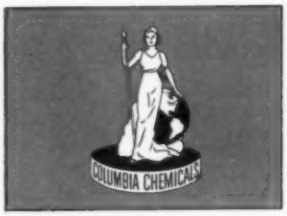

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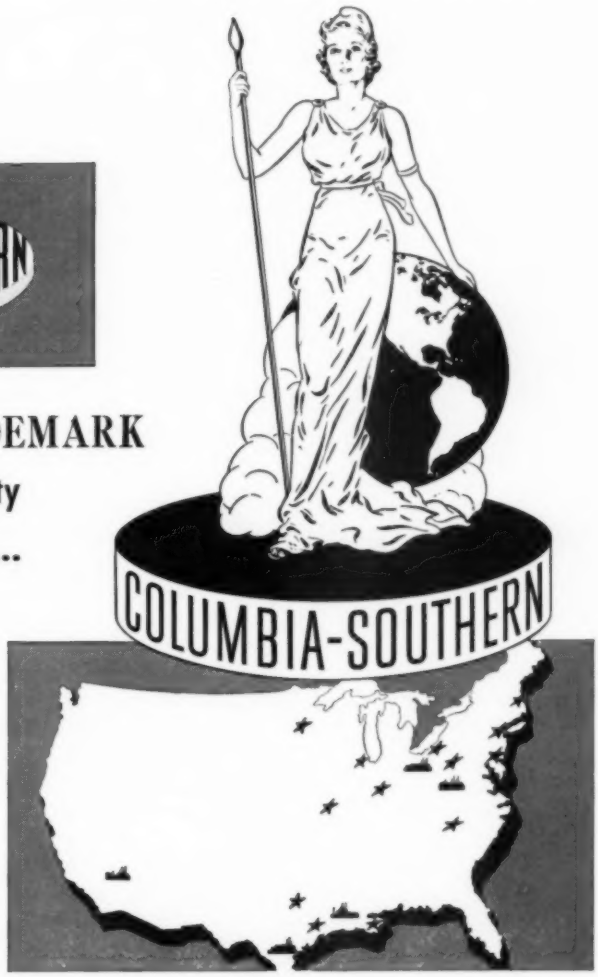

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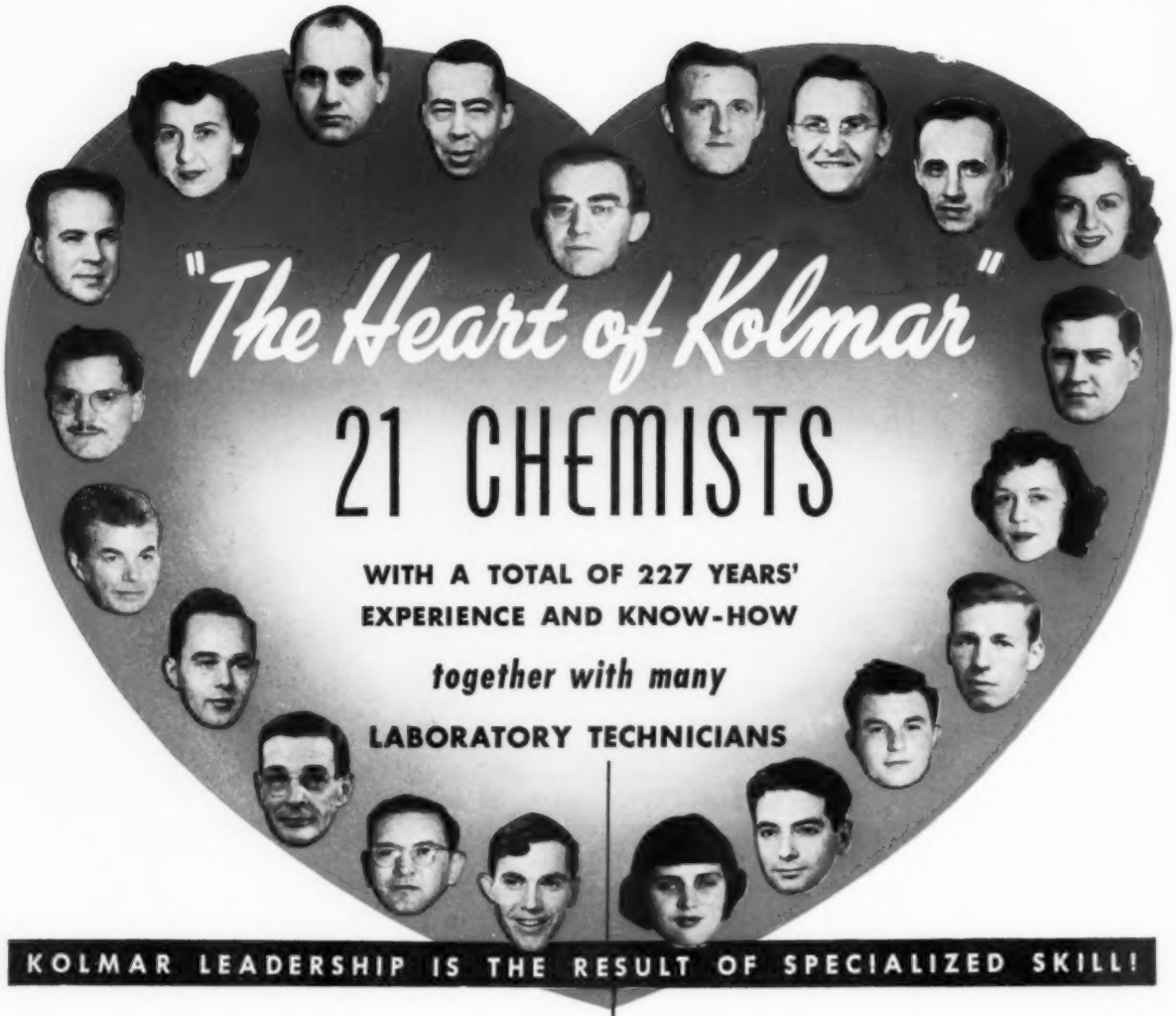
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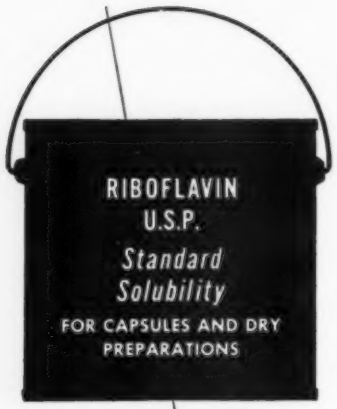

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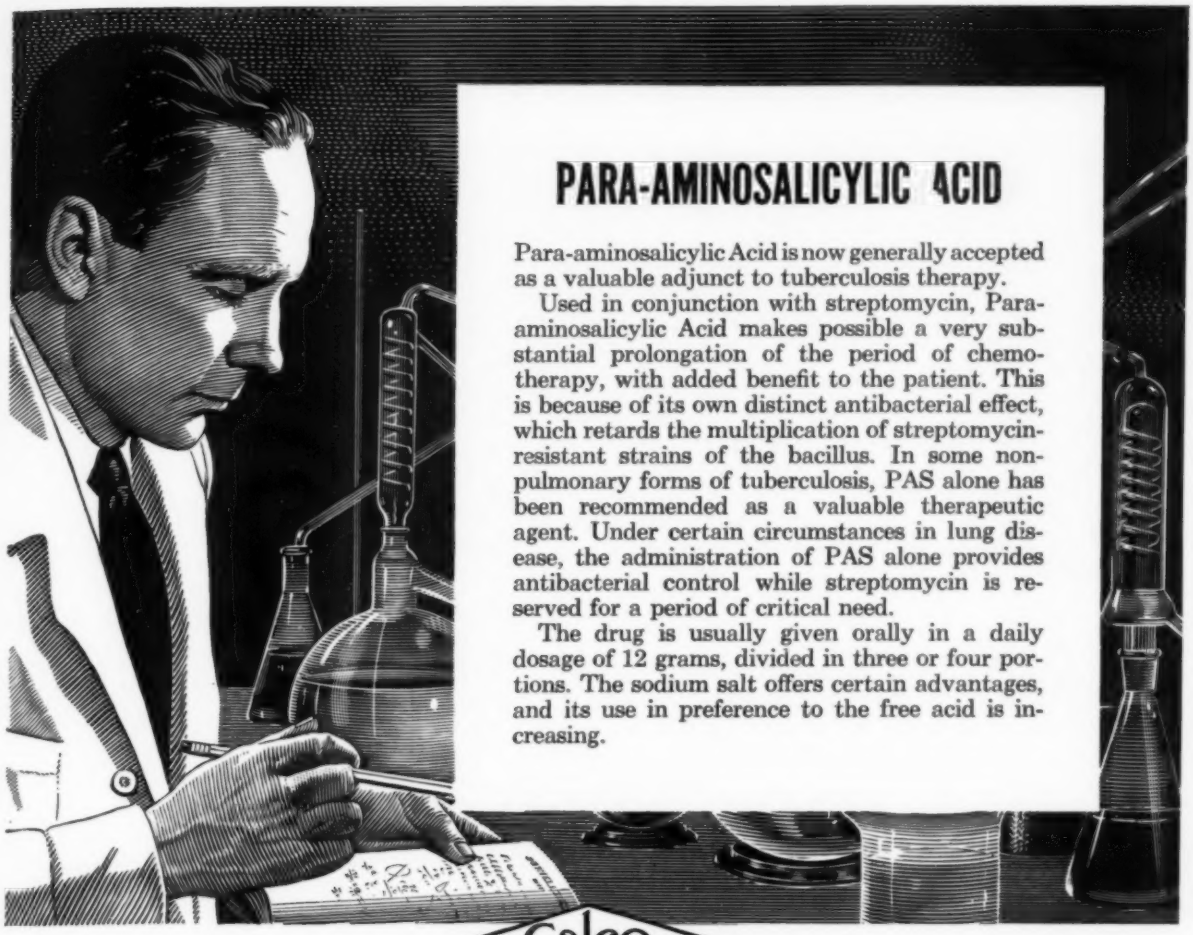

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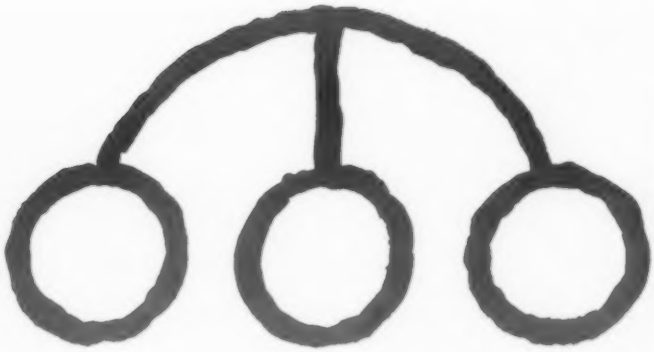

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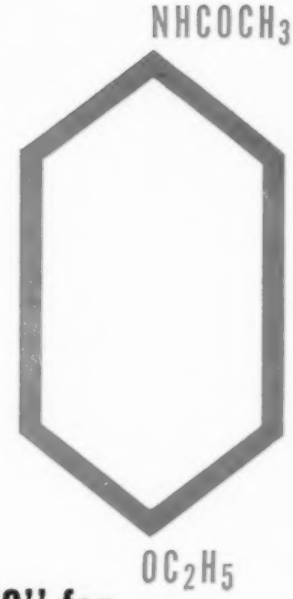

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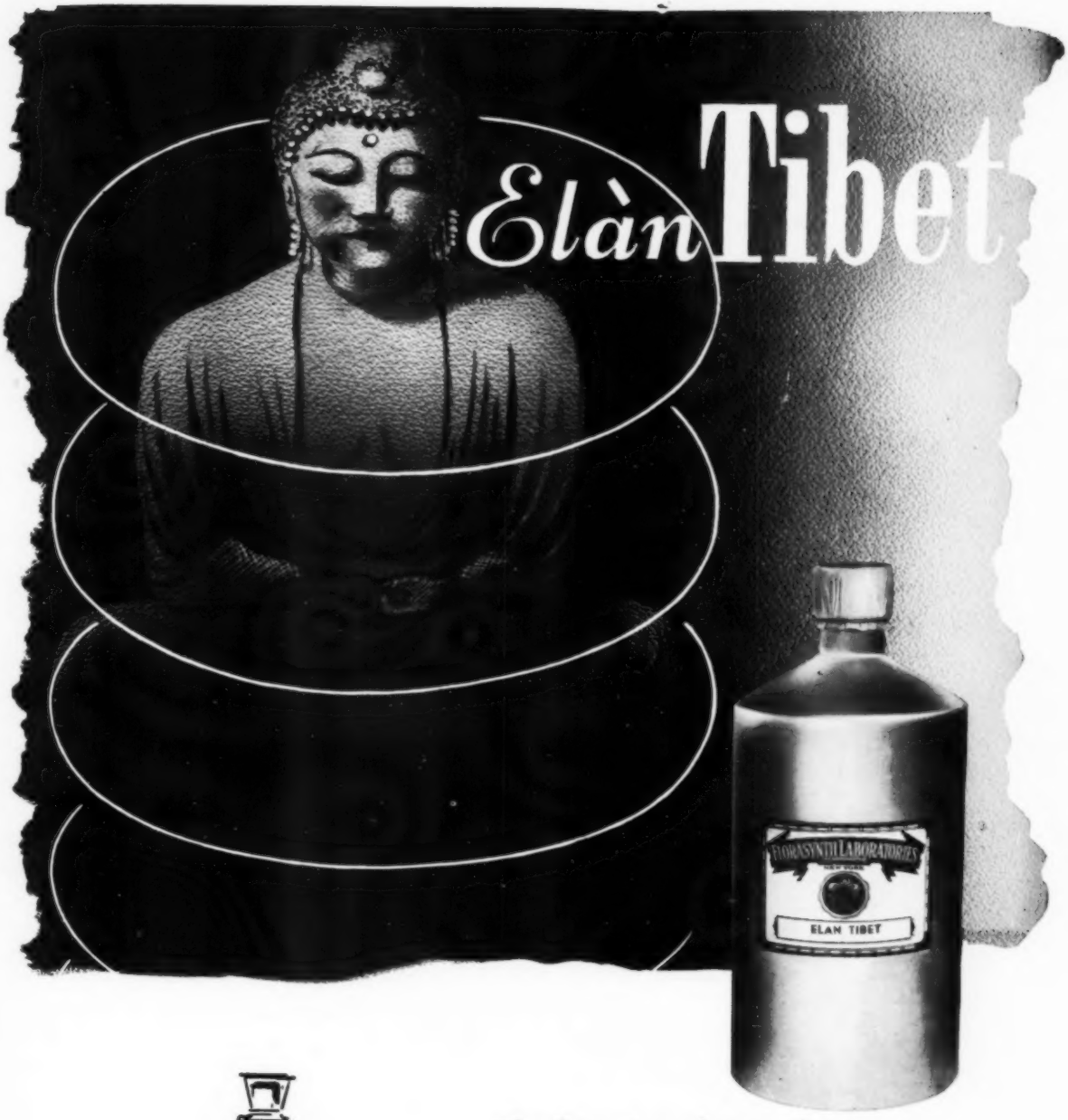

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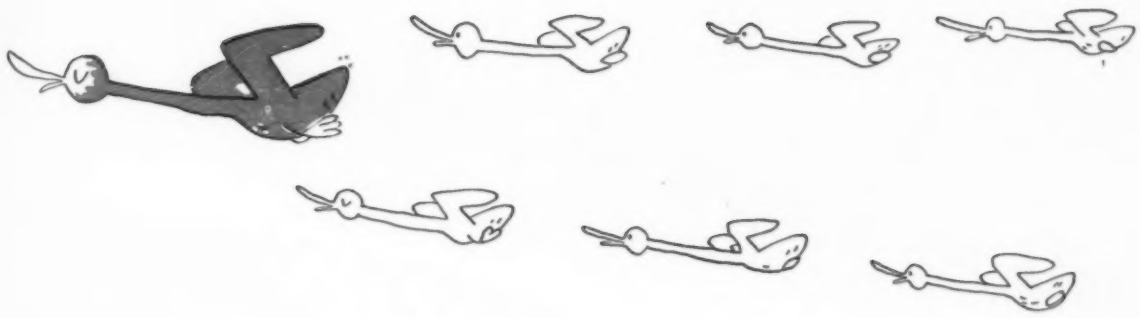

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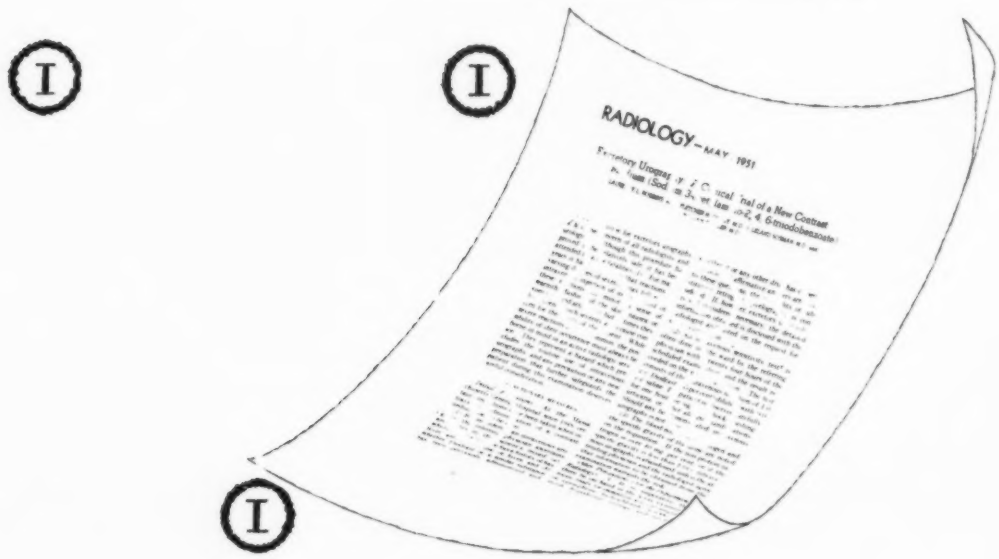

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· MANUFACTURERS OF FINE CHEMICALS FOR THE PHARMACEUTICAL INDUSTRY · SINCE 1867 ·

"So I asked the boss, what classy dame is going to use green tooth paste, when she's got peach-colored bathroom fixtures, for instance?"

Keeping Posted

Parenteral Drug Two-Day Sessions

A TWO-DAY meeting of the Parenteral Drug Association is being held at the New Academy of Sciences on October 26 and 27. The meeting opens at 1:30 P. M. on Friday, October 26 with a paper on the Sterilization of Parenterals by Dr. Louis Gershenfeld, of the Philadelphia College of Pharmacy and Science, followed by a paper on the Physician and the Parenteral Manufacturer, by Dr. Edward B. Schlesinger, Neurological Institute, Presbyterian Hospital and Institute for the Crippled and Disabled, New York, and closing with a moving picture entitled, the Building of a Pharmaceutical Plant, which depicts the planning and construction of the Sandoz pharmaceutical plant at East Hanover, N. J.

This will be followed by a dinner session to be addressed by Dr. Lloyd C. Miller, Director of Revision, U. S. Pharmacopoeia, on the Third Supplement: How It Affects Parenterals, and by John L. Harvey, Associate Commissioner of Foods and Drugs, on Parenterals Under the Federal Food, Drug, and Cosmetic Act.

On Saturday morning at 10:00 o'clock, Dr. Abraham Taub, Columbia University, School of Pharmacy, will act as moderator in a round-table discussion on Control Problems in Parenteral Production. This will be followed by a discussion on Production Problems in Parenteral Manufacture, in which Dr. Hugo H. Schaefer, Dean, Brooklyn College of Pharmacy, will act as moderator, and Regulatory Problems of the Manufacturer, in which Arthur D. Herrick will act as moderator.

It is stated that these round-table discussions "are in no sense to be considered passive talks," and those attending are urged to present any problems that they have solved or that they are facing. Plans provide for an exhibit of equipment, with demonstrations wherever possible.

Costs of Pharmaceutical Development

JUST an indication of the high cost of development of new pharmaceutical products is the fact that Abbott Laboratories, during a four-year period and before a single tablet was placed on the market, distributed to physicians without charge, nearly five million tablets of Phenurone. This drug, discovered early in 1947, has been undergoing extensive clinical testing in the treatment of selected cases of epilepsy. During the clinical trials by the nation's leading specialists in epilepsy, 1,539 patients were given over two and one-half tons of Phenurone in small, half-gram tablets.

Another example of the extent of clinical testing which must be conducted before a new pharmaceutical preparation is placed on the market is evidenced by the work done with Surital sodium, a new thiobarbiturate drug for use as a short-acting anesthetic agent, now being introduced by Parke, Davis & Co. Three specialists at Bellevue Hospital, New York, including Dr. E. A. Rovenstine, chief anesthetist at Bellevue and one of the nation's renowned anesthesiologists, administered the drug to "several thousand" patients and conducted a series of studies involving 200 children ranging in age from six months to 11 years. Dr. P. C. Lund of Johnstown, Pa., successfully employed Surital on over 6,000 patients. Dr. J. B. Dillon and J. S. Denson of the University of Southern California Medical School, reported favorable use of Suritalin on 700 patients ranging in age from two months to 49 years. Three doctors of Edmonton, Alberta, Canada, reported safe and potent results on 490 patients. Two doctors at Georgetown University Medical Center reported successful use on 1,200 patients.

The scientific designation of this drug is sodium 5-allya-5-(1-methylbutyl)-2-thiobarbiturate. Distribution at the present time is only to certain hospitals, and several months will elapse before production permits general distribution.

Vitamin B_{12} Price Again Cut

EXACTLY two years ago this month we reported on a sharp price reduction in the case of vitamin B_{12}. This reduction, announced in September 1949, was from $11.50 per milligram to $6.50 per milligram. Although this indicated a price of $6,500 a gram, or $6,500,000 per kilogram, we pointed out that the cost of the drug for the dosage of 30 micrograms per week in cases of pernicious anemia was less than 20 cents. Now, exactly two years later the price, after many reductions made in the interim, is cut from $450 per gram to $350 per gram. Note that the price is now quoted in grams instead of milligrams because of the fact that the value is sharply lower and the use is much greater. This latest price figures out to 35 cents per milligram, compared with the price of $6.50 per milligram two years ago. The kilogram price today would

be $350,000, compared with $6,500,000 two years ago. The cost of the drug for a week's treatment of pernicious anemia is now just about one cent (1.05 cents), compared with 18 cents, two years ago. This is just another example of the fact that the makers of ingredients of drug preparations rapidly pass on the savings in cost which result from increased use, plant and research amortization, and lower costs of production.

Upjohn Produces Compounds B and F

THE Upjohn Company, which has been working diligently on the problem of the adrenal cortical hormones related to cortisone, has now made announcement of partial synthesis of two of these products, namely compound B, and compound F. Easily accessible sterols and adrenal glands of hogs are used as the starting materials in the new Upjohn biosynthesis, a process which involves transformation of chemical substances by application of biologic processes. Dr. Richard S. Schreiber, Upjohn research director, says that these two products are now available in quantities sufficient for clinical testing, and that allocations have been made and the testing is now taking place.

Compounds F and B are two of some 28 hormones isolated from adrenal glands. In animals, Dr. Schreiber said, compound F has proved more active than cortisone, and evidence thus far indicates that it is the predominant natural hormone. It was obtained by Upjohn scientists in January, 1938, but until now there has not been enough available to determine its effectiveness in human ailments.

The process entails the grinding of frozen adrenals—quick-frozen immediately at the time they are removed from the slaughtered hogs—making a mixture of minced tissue, juices and a "buffer" liquid in which the hormone is to be "grown" from one of the two synthetic sterols. At this point the procedure varies. To produce compound B, the minced mixture is sprayed with desoxycorticosterone, readily synthesized from vegetable steroids. Thereafter, following incubation and aeration for approximately 30 minutes, during which time the materials react, the biosynthesized hormones are extracted. Compound B, still largely untested clinically, bears the chemical name, corticosterone.

In production of compound F a different steroid, 11-desoxy-17-hydroxycorticosterone (Reichstein's compound S), also synthesized from vegetable sources, is added to the minced hog gland mixture. Aeration and extraction procedures are much the same as for compound B. Although compound F predominates, some cortisone is produced simultaneously. The chemical name of compound F is 17-hydroxycorticosterone.

In addition to the partial biosynthesis, now in the pilot-plant stage of production, Dr. Schreiber said that Upjohn scientists have also succeeded in producing a complete biosynthesis (without addition of other steroids) of adrenal cortex hormones. This complete biosynthesis involves incubating razor-thin slices of quick-frozen adrenal glands with radioactive sodium acetate. The end product of this biosynthesis is a steroid concentrate in which compound F, again, is predominant. Yield and cost problems, added Dr. Schreiber, make the complete biosynthesis impractical production-wise, although it is regarded as an important scientific advance in the field of steroid chemistry.

Upjohn scientists report that quick-freezing of the adrenal is most important. Some seven years ago they found that if they used quick-frozen adrenal glands collected under carefully controlled conditions, they got two to three times more biological activity than could be extracted from unfrozen glands. Dr. William J. Haines, an Upjohn chemist who has played an important part in the company's 18-year-old adrenal hormone research program, explains, "In unfrozen hog adrenal tissue enzymes degraded the active sterols before extraction was completed. We found that, if we controlled the collection to quick-freeze the glands before enzymes could break down the steroids, we got more total biological activity and a higher percentage of compound F in the resultant product."

The ratio of compound F to cortisone is several times greater in quick-frozen hog adrenal glands than it is in unfrozen glands. Presumably, if the glands are allowed to stand unfrozen for more than a few hours, the enzymes convert compound F to compound E (cortisone) and finally to something that has no biological activity at all.

"The Upjohn Company's partial biosynthesis, Dr. Haines added, "gives 15 to 25 times more biological activity than could be extracted from the same amount of hog adrenal tissue by mere extraction.

"By means of our work with adrenal cortex hormones, supplies of compound F and B have been materially increased so that extensive clinical evaluation is now a reality. In addition, it is now possible to produce composite concentrates of adrenal hormones which are rich in compounds F and B, but which also contain other factors which were originally present in the tissue itself. This has resulted in a many-fold increase in the supply of carbohydrate-regulating adrenal hormones as compared to the quantity which could have been extracted directly from the same tissue."

Hard Capsule Monopoly Case Settled

THE Justice Department has settled the action brought against Parke, Davis & Co., and Eli Lilly & Co., in which a monopoly in hard capsules was charged. An anti-trust judgment which represents a negotiated settlement has been entered. The decree requires the two companies to make their existing patents available to all, without charge, and to license future patents on a "reasonable royalty basis." It also prohibits any price-fixing for capsules or the acquisition of competing companies. The Justice Department says that the judgment will "make it possible for new competition to assert itself." In the complaint, filed in Feburary, 1950, it was charged that the companies had jointly obtained control over machinery for making capsules and had used this control to obtain 90 per cent of the hard gelatin capsule business in this country.

Medicinals from Meat Packing

MEDICINAL preparations made from raw materials supplied by the meat-packing industry are now selling at the consumer level at the rate of about $200 million a year, Dr. David Klein, of Wilson Laboratories, recently told the American Chemical Society. He said that the preparation of glandular and other materials from inedible portions of animal carcasses had become a big business during the last several years, providing an excellent example of the chemist's art of obtaining useful products from hitherto unused materials. Dr. Klein called attention to the fact that in the course of evaluation and development, prices

of some of these materials have advanced several times. Bile, which sold a few years ago at 12 cents a pound in concentrated form, now sells at $1.75 a pound under ceiling regulations, while pork pituitary glands, formerly yielding $5 a pound, are now bringing $50 a pound.

Squibb's Dental Cream Price

WE REGRET most sincerely the fact that we reported in these columns last month that the Fair Trade Minimum price for the economy size of Squibb's Dental Cream was 67 cents, instead of 63 cents. The latter is the price at which Macy has been selling this item, and it is the current Fair Trade minimum. The Fair Trade Minimum on this item was 67 cents during a period extending from July 28, 1950 to November 13, 1950, but on the latter date it was reduced to 63 cents. Unfortunately we consulted the 1950-1951 issue of a prominent price book which was current at the time we looked up this price, which in that issue was 67 cents.

Cortisone, Baldness and Gray Hair

WHILE it is common for new drugs to be tried by doctors for all sorts of conditions which were far from the minds of the developers of the product when they first introduced it, no one expected cortisone—even though it is a hormone—to have anything to do with the recovery of cerebral hair growth, and certainly not with the color of this restored hair being black in a man whose hair was gray. Yet such results have occurred in the case of a 74-year-old man who was treated with cortisone to relieve a severe dermatitis contracted after the administration of penicillin as a prophylactic in a minor surgical operation. In the course of the illness, which lasted several months, all his hair fell out, so that he became "as bald as a billiard ball." Administration of cortisone, given as a last resort when all other measures had failed, not only gave almost immediate and dramatic relief from the dermatitis, but to the amazement of the attending physician, family, and friends, his hair began to grow again, so that within a few weeks he had a complete head of hair except for one bald spot in the center which he had before he contracted the illness. Even more startling was the fact that the color of the restored hair, as well as the color of the beard and mustache, was no longer silver-gray, but largely the original color of the patient's hair when he was twenty years younger. And even though the cortisone was discontinued several months ago, there is still no sign of any change in the rejuvenated coloration of the patient's hair.

FTC Defends Practice

THE Federal Trade Commission, through its chairman, James M. Mead, contended that it is within its rights in issuing a Cease and Desist Order even though the practices complained of in the citation have been discontinued. The Chairman said that there seemed to exist a misunderstanding concerning this authority of the FTC and reasons why the Commission entered an order in these circumstances. Said Commissioner Mead:

"This question has been raised many times by respondents in appeals from Commission decisions. Almost invariably the courts have ruled that, under the law, the Commission has both the authority and the duty to exercise its discretion in entering these orders, even though the practices it found to be illegal had been discontinued prior to entry of the order, or even before the complaint was issued.

"Discontinuance of an unlawful act, whether it be false advertising, a price-fixing combination, or any other practice condemned by the Commission, gives no definite assurance that it will not be resumed. An order to cease and desist, which operates like an injunction, is the most effective weapon the Commission has to provide the necessary guarantee that an unlawful practice will not be renewed and that the public and the respondent's competitors will be protected from the consequences of the practice."

Britain and France Inspect Canning

AS PART of a six-week program of study of this country's production methods under sponsorship of the Economic Cooperation Administration, 29 specialists from the canning industries of Great Britain and France visited one of the can manufacturing plants and research laboratories of the American Can Company at Maywood, Ill. The visiting technicians toured the laboratories and the food can manufacturing plant to observe how American industry maintains its high rate of container production and to study recent technological advances in can making. The Maywood tours were under the direction of J. A. Christianson, manager of the Maywood can-making plant; Dr. B. S. Clark, director of the company's general research laboratories; and Albert S. Scott, supervisor of training for the company.

Doctors Object to Word "Miracle"

A DOCTOR in Scranton, Pa., who used the word "miracle" in describing the recovery of a blind woman's sight will be investigated by his county medical society, according to an Associated Press dispatch. Dr. Alexander M. Munchak was told that he would have to explain his public statements at a fact-finding inquiry. The case concerned Mrs. Mary Cerra, 38 years old, who had lost her sight 11 years ago, and regained it August 11, while being treated by Dr. Munchak. At the time the recovery of sight occurred, Dr. Munchak told newsmen: "It's as close to a miracle as I've ever seen."

All of which causes us to wonder just who these doctors think they are. Any physician who has practiced for a fair length of time observes cures and recoveries which he cannot explain. With all their knowledge of the treatment of the ills to which flesh is heir, they still know very little. How often have doctors sought eagerly after supplies of so-called "miracle" drugs when they had no knowledge of how these things effected a cure. But when a cure is effected without the help of a doctor, and a doctor observes it and is honest enough to describe it as a miracle—merely because he does not understand how it came about and because he admits that he had nothing to do with it—they bring him before their group for censure.

Apparently this group of doctors is of the opinion that any cure effected must be ascribed to the treatment by a physician if any public statements are to be made regarding it. It is indeed unfortunate for these small-minded men that so much is still unknown about

the treatment of abnormal bodily conditions and that nature itself, in some inexplicable way, occasionally remedies these conditions.

Dr. Dunbar on Vitamins and Minerals

DR. PAUL B. DUNBAR, who recently retired as Commissioner of Food and Drugs, still seems to be violently opposed to some present-day selling methods of vitamins and minerals mixtures. Said Dr. Dunbar in making his report to the 55th annual conference of the Association of Food and Drug Officials of the United States:

"Human nature being what it is, there will always be some outlaws—people whose object is to prey on their fellow men. Today a new group of these parasites seems to be developing. Perhaps they have a vitamin-mineral mixture to promote; perhaps a pseudoscientific book or 'course in nutrition.'

"Vitamin-mineral mixtures have their place. They are, in fact, recognized under the special dietary food section of the Food, Drug, and Cosmetic Act. If labeled honestly, as required by the regulation, their distribution is not contrary to public interest. But where their sale is promoted by representations, through various and sundry means, that our food supply is debased and adulterated and that our only salvation is to rely on peculiar and sometimes unpalatable mixtures, a vicious imposition on the public occurs.

"As far back as any of us can remember we have had nutritional zealots among us, some sincere, some with something to sell, many of them crackpots. They all acquired a following. In contrast to the cranks and nostrum vendors we had competent nutritionists who clearly perceived that there were nutritional areas that needed attention; and so there developed some nutritional advances like the incorporation of vitamin D in milk and the enrichment of flour and other cereal products with vitamins and minerals. In passing let me point out that these are in truth chemical additives to food, and yet the addition of these chemical additives was definitely in the public interest."

OPS Frees Domestic Botanicals

MORE than 200 crude botanical drugs—roots, herbs, leaves, barks, flowers and berries, both cultivated and wild—produced in the United States have been exempted from price control by the Office of Price Stabilization. Among these botanicals are bayberry root and bark, cascara bark, catnip leaves and tops, digitalis leaves, ginseng root, horehound herb, juniper berries, pennyroyal leaves and herbs, poke root and dry poke berries, pipsissewa, poison oak leaves, pulsatilla herb, sarsaparilla and sassafras root and bark, stinging nettle leaves and wahoo bark. A statement by OPS reads:

"Individual growers and independent collectors gather and sell the drugs almost wholly to several large botanical drug houses which sell about $3,000,000 worth of crude and processed domestic botanical drugs annually for domestic use. The botanical drugs are used mainly as ingredients in the manufacture of drugs and medicinals, and the cost of the former has only a minor effect on the price of the latter. The industry is seasonal and scattered and the difficulties of administering price control are out of all proportion to the advantages of control. Many of the drugs are gathered by part-time seasonal workers, and unless dealers pay attractive compensation, workers tend to move to more remunerative activities. With continued control of the prices of processed drugs, it is believed that the exemption of crude drugs will not have an inflationary effect.

"The exemption applies to all sales of the listed domestic crude botanical drugs, wild and cultivated, crude and milled, but not to extracts of such drugs or to such drugs which have been processed by means other than desiccation and pulverization. Moreover, it does not apply to certain other domestic botanical drugs not listed which are primarily consumed by other industries for food flavoring, tanning and other uses, or to imported crude botanical drugs."

All of which seems to indicate that the users of the above drugs are to be squeezed by having to pay more for their botanicals, while they are not allowed to increase the prices of the products in which these botanicals are included as ingredients. This is so because the OPS says that the effect of the prices of these botanicals on the cost of the finished medicinals is "minor." Also imported botanicals are still to be price controlled, raising a possible problem in obtaining imported botanicals.

Denies Fair Trade Intrastate Injunction

AS WE PREDICTED some time ago, the State Fair Trade Acts are being subjected to weakening influences as a result of the U. S. Supreme Court decision in the Schwegmann case. As an example, Superior Court Judge Frank G. Swain of Los Angeles recently ruled that, because of the Supreme Court decision, a manufacturer making and selling goods in California and also distributing in one other state, could not get a preliminary injunction against a California price-cutter. The plaintiff was the Cal-Dak Co., manufacturer of Sav-Ur-Bak Clothes Baskets; the defendant was Sav-On Drugs, Inc.

The Cal-Dak Co. argued that since the making and delivery of the product took place in California, it was an intrastate transaction, subject only to the California Fair Trade law. But the Judge refused to grant the injunction, saying:

"The success or failure of the plaintiff's sales in California unquestionably affect plaintiff's ability to continue to sell its products in other states and therefore affect interstate commerce. This means that the entire selling end of the plaintiff's business is under the control of Congress and attempts to regulate the selling price to be charged by non-signers are violative of the Sherman Act. I am in sympathy with the desire to eliminate disastrous price-cutting practices, but only Congress can give that relief where sales affect interstate commerce."

Judge Swain pointed out that the 1936 decision of the U. S. Supreme Court did affirm a decision of the California Supreme Court which held that reselling goods in California, even when they were manufactured outside the state, was governed by state law, not the Sherman Act. But this case, according to Judge Swain, "is no longer authority for the proposition that sales in California of merchandise brought here from another state do not affect interstate commerce."

Whether or not such a decision would be upheld by the higher courts in California we do not know, but this sort of decision clearly indicates that the maintenance of retail prices under the State Fair Trade laws will not be as simple as it was even before the enactment of the Miller-Tydings Amendment which was seriously limited in its effect by the Schwegmann

decision. Various judges in many of the states having Fair Trade laws might refuse injunctions in all sorts of actions for many different reasons as a result of this U. S. Supreme Court decision. And while some or all of these decisions might be reversed if appealed to the higher courts, the damage wrought by these decisions will greatly weaken the fair trade situation for an indefinite period of time, if not forever.

This decision is an instance in which a judge refuses to recognize the right of a State to enact and enforce fair trade legislation, claiming that this right has been surrendered to the Federal Government. If this decision were to hold, then attempts to make fair trade effective by means of wholesaler-retailer contracts would be out the window, as would attempts to force fixed prices on sellers of goods made in the State which had been shipped in interstate commerce back into the state in question. Any way we look at it, the path of fair trade from here on is going to be a rocky one.

Heyden Sells Second Preferred

HEYDEN Chemical Corporation is raising in excess of $5,000,000 new capital to cover the cost of plant expansion through sale of 53,300 shares of Convertible Second Preferred Stock, no par value, previously authorized, according to John P. Remensnyder, president. Rights are being offered to common stockholders at the rate of one share of the convertible preferred for each 20 shares of common stock held.

"Increased demand for Heyden antibiotics, pentaerythritol and other specialty products has required an accelerated program of improvement and expansion," said Mr. Remensnyder. "As of September 7, 1951, the expenditure of approximately $8,500,000 has been authorized by the directors for plant expansion, of which approximately $1,900,000 has been expended."

Merck Facts

MERCK & Co. reports that vitamins, as a group, accounted for the largest percentage of total sales during the first six months of 1951, and were followed in importance by cortisone and then by antibiotics, the three together accounting for approximately two-thirds of the sales during that period. No other product or product group accounted for as much as 10 per cent of the company's sales for that period. Approximately three-fifths of the company's domestic sales are made directly to manufacturers, including pharmaceutical and veterinary houses, food processors, feed manufacturers, and other industrial users. Most of the remaining domestic sales, including prescription chemicals, laboratory chemicals and specialties for medicinal and household use, are made to wholesale distributors, government agencies, hospitals and institutions.

The foregoing and other information concerning the company are given in the prospectus issued in connection with the recent offering of preferred stock. Total sales of the company for the first six months of 1951 totaled $60,640,000, of which vitamins, cortisone and antibiotics accounted for $40,345,000, and all other products, $20,295,000. Total sales in 1950 amounted to $94,093,000, of which vitamins, cortisone, and antibiotics accounted for $58,530,000, and all other products, $35,563,000. Comparable figures for 1949 were $69,514,000, $37,821,000, and $31,693. For 1948 these figures were $68,519,000, $39,872,000, and $28.647,000. For 1947, $63,337,000, $32,653,000, and $30,684,000. It must be noted that cortisone was first introduced in 1949. It should also be noted that these figures do not account for the substantial increase in production of certain vitamins, penicillin, and cortisone expected to be derived from additional manufacturing facilities nearing completion at the Cherokee Plant, nor possible selling price decreases, if any.

Vitamins sold by the company include B_1, B_2, B_6, B_{12}, niacin, niacinamide, calcium pantothenate, A, C, E, and K.

With reference to cortisone, current Merck production is sufficient to treat approximately 90,000 rheumatoid arthritis patients (there are in excess of 2,000,000 such cases in the U. S.), and many more thousands suffering from other, shorter term diseases for which cortisone is recommended. Future process developments and expansion of production capacity are expected to more than double Merck's current rate of production by the latter part of 1952. The price of Merck's cortisone has been reduced eight times since the initial 1949 price to investigators of $200 per gram, including the recent reduction of October 1, to $16.50 per gram at wholesale.

During the last two years, Merck has entered into agreements with several foreign firms under which the company licenses its processes and "know-how" for construction and operation of antibiotic plants. Royalty agreements are now in effect in England, France, Western Germany, Sweden, Spain, Italy, Japan, and Brazil. Receipts under these agreements for the first six months of 1951 totaled $827,000. In addition, receipts under domestic patent licensing agreements totaled $352,000 in the same period. During this same time, Merck paid to others $1,266,000 under licenses.

Merck's export business totaled $10,900,000 for the first six months of 1951, compared with $19,700,000 for the year 1950, $16,300,000 for 1949, $13,400,000 for 1948, $8,300,000 for 1947, and $7,400,000 for 1946. Antibiotics and vitamins continued to account for a major part of export sales during the first six months of 1951.

Research and development expenditures for 1950 totaled about $4,000,000, and the company anticipates a continuation of its present aggressive research program, which is to a large extent directed toward the development of hormones, antibiotics, nutriments, and general medicinals.

Total number of employees of the company and its consolidated subsidiaries has increased from 2,200 at the end of 1940 to 6,500 at June 30, 1951.

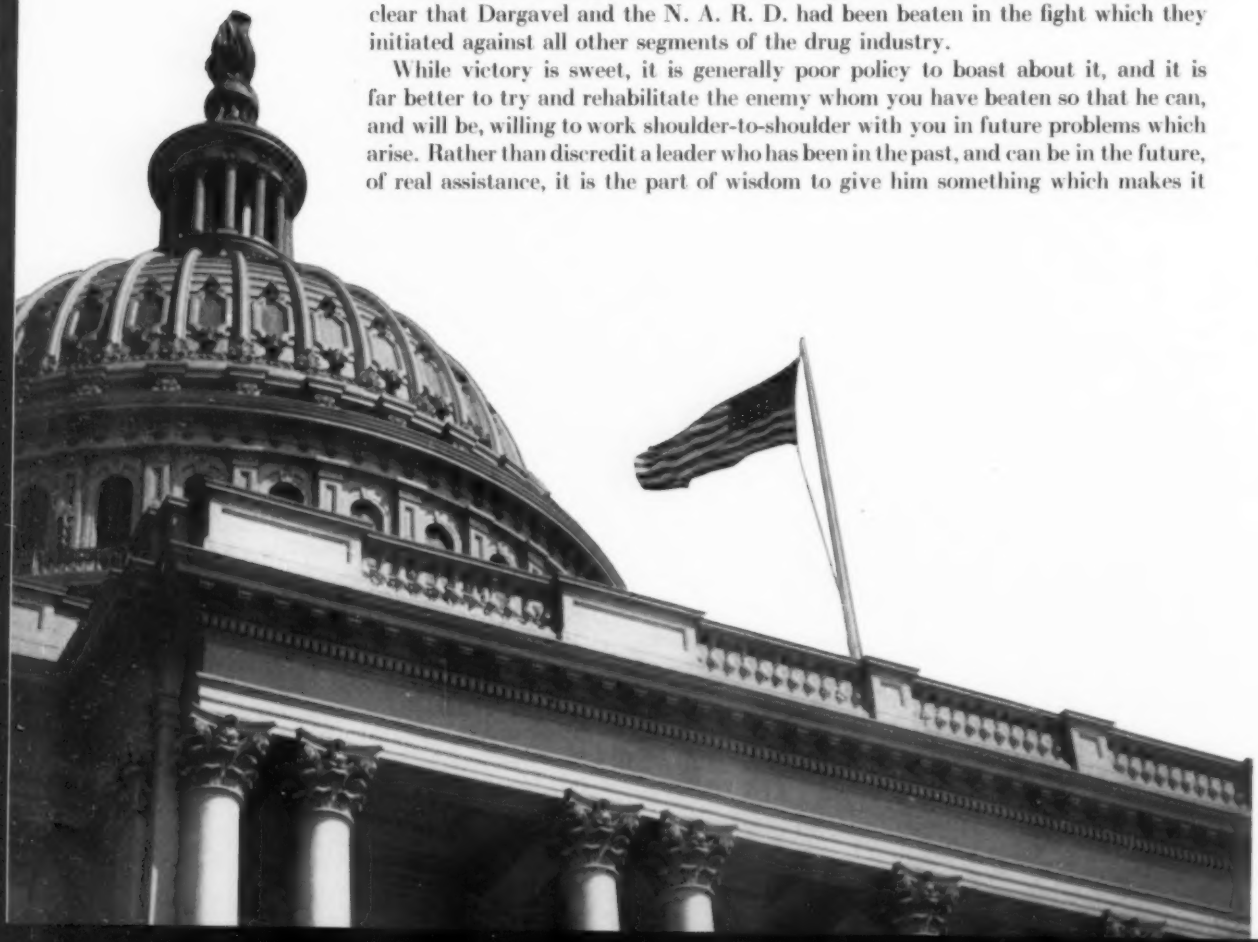
The principal plant is on a site of 200 acres partly in Rahway and partly in Linden, N. J. The Stonewall Plant at Elkton, Va., construction of which was started in 1941, is located on a site of approximately 400 acres. The Cherokee Plant (formerly the Cherokee Ordnance Works) located near Danville, Pa., is the result of a contract with the Government under which Merck is obligated to buy the plant on December 31, 1965. The company has the right to buy certain parcels during the contract period, but must maintain certain buildings and equipment so that they can be reactivated, by Government order, for production of specified chemicals for national defense. The Government has recently requested reactivation of a certain portion of this plant. The Marine Magnesium Products Division Plant, located on San Francisco Bay at South San Francisco, is situated on about seven acres and the company has bought about 200 acres of adjoining property. The company also owns a plant in Montreal, Canada, and since 1944, a considerable expansion of manufacturing operations has taken place at Valleyfield, Quebec, on a tract of about 200 acres.

Durham-Humphrey Compromise

PRIOR to the hearings on the Durham-Humphrey Bill before the Senate Committee on Labor and Public Welfare, a compromise was effected between the manufacturing drug interests and the National Association of Retail Druggists as to the form of the proposed legislation which would be acceptable. As a result of this agreement a statement signed by the N. A. R. D., the American Drug Manufacturers Association, the American Pharmaceutical Manufacturers Association, and the Proprietary Association, was filed with the committee with representatives of each of the signing associations appearing before the committee and expressing approval of the bill in the proposed form.

It appears that the bill, H. R. 3298, as amended on the floor of the House and then forwarded to the Senate, was quite satisfactory to the manufacturers in the form in which the House passed it. It also appeared that action by the Senate would most likely favor approval of the bill in a form close to that passed by the House, and that the provision for an administrative definition of what drugs should be limited to prescription sales was a dead number. This was the provision which the N. A. R. D., principally through the activities of its executive secretary John W. Dargavel, had fought bitterly to have kept in the bill. Therefore, it was quite clear that Dargavel and the N. A. R. D. had been beaten in the fight which they initiated against all other segments of the drug industry.

While victory is sweet, it is generally poor policy to boast about it, and it is far better to try and rehabilitate the enemy whom you have beaten so that he can, and will be, willing to work shoulder-to-shoulder with you in future problems which arise. Rather than discredit a leader who has been in the past, and can be in the future, of real assistance, it is the part of wisdom to give him something which makes it



appear that he has upheld his own dignity and the dignity of the members of his association. Thus the manufacturers and distributive divisions of the drug industry who were strongly opposed to the original draft of the bill as sponsored by the N. A. R. D. and the Food and Drug Administration, changed the bill in such a way as quite obviously to relieve the retailer of responsibility which the manufacturers had believed they had already relieved the druggist of when they read the bill as passed by the House.

Furthermore, the bringing into complete agreement of all segments of the drug industry made it appear that enactment of the bill in the form proposed by the industry would be certain. And the strong effort which the N. A. R. D. successfully made in having the bill reported out of the House Committee in the form in which they wanted it, would now be directed toward assuring enactment of the bill in a satisfactory form. In fact, the September 17 issue of the N. A. R. D. Journal contained the following statement by Dr. John W. Dargavel:

"It is urgent for you druggists to wire or write at once to the members of the Senate Committee on Labor and Public Welfare to ask them to report out for passage bill H. R. 3298 with the amendments that the various segments of the drug industry came to an agreement on and which by the time you read this special dispatch will have been submitted to the Senate Committee on Labor and Public Welfare. Failure of you druggists to respond with a heavy flow of letters and telegrams will jeopardize everything that has been done to procure relief from Federal restrictions on refills and telephone prescriptions and abuses of the legend. It is imperative to receive strong support for the Durham-Humphrey bill. I am confident that you druggists will come through with it to insure a report with recommendation to pass from the Senate Committee on Labor and Public Welfare."

The important part of the agreement is as follows:

"That subsection (c) of Section 303 of the Federal Food, Drug, and Cosmetic Act, as amended, is hereby amended by striking out the period at the end of clause (3) and inserting in lieu thereof a semicolon, and by inserting after clause (3) the following:

"or (4) for having violated Section 301 (b), (c) or (k) by failure to comply with Section 502 (f) in respect to an article received in interstate commerce to which neither Section 503 (a) nor Section 503 (b) (1) is applicable, if the delivery or proffered delivery was made in good faith and the label at the time thereof contained the same directions for use and warning statements as were contained on the label at the time of such receipt of such article."

With respect to just what this amendment means, Dr. Dargavel explains to the druggist members of the N. A. R. D.:

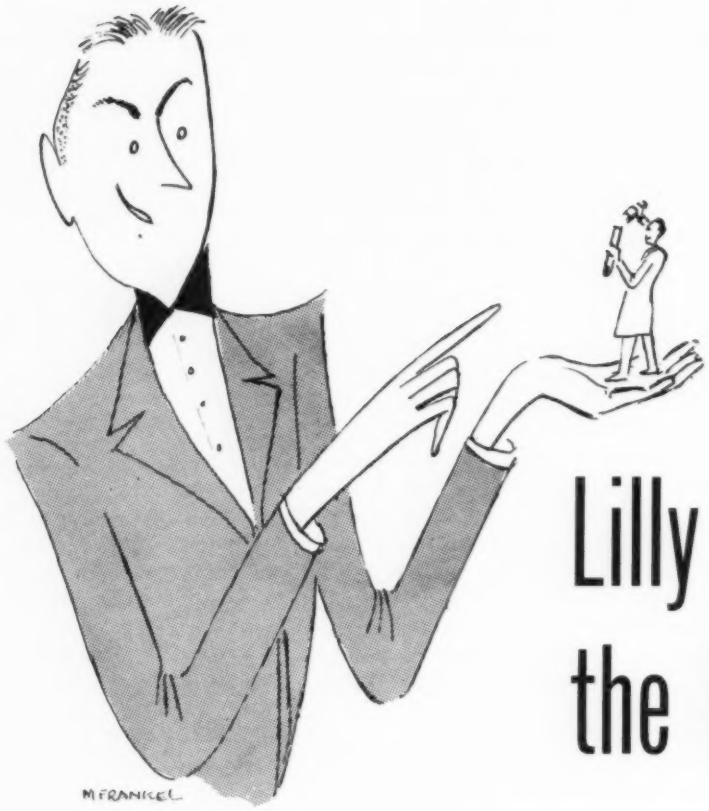
"Reduced to simple language, they provide that responsibility for labeling be removed from the shoulders of the druggists to those of the manufacturer where it belongs. Furthermore, the responsibility for labeling, for the proper use of the legend and for the placement of adequate directions for use on medicinals that may be sold over the counter will lie with the manufacturers. If any of you druggists in good faith sell these products either in their original packages or in bulk, and if you copy the label of the producer and transfer it to your own, you will be free from criminal liability in the event the maker has failed to comply with the law and the item be misbranded. Of course, sales of dangerous and legend drugs over the counter will continue to be illegal."

From the manufacturers' viewpoint it is difficult to see just in what way this compromise provision changes the Federal Food, Drug, and Cosmetic Act at all. The original Act contained a guarantee clause which exempts the retailer or any other distributor of the goods in the event that the goods as made or labeled by the manufacturer are in violation of the law in any respect. However, if it pleases the N. A. R. D., there certainly can be no harm in repeating these provisions.

In speaking for the American Pharmaceutical Manufacturers Association, Charles Wesley Dunn, counsel for the Association, said with reference to this amendment:

"The APMA unwillingly approved this amendment, solely for united drug industry and trade action at these hearings; but I cannot personally approve it, consistent with my professional obligation to food and drug law. For it is a basically

(*Continued on page 536*)



Lilly Surveys the Druggist

THE economic plight of the retail pharmacist is again set forth in the Lilly Digest. In the 19th annual edition of this survey which summarizes and analyzes the financial reports of 1,188 drug stores for 1950, it is indicated that the retail druggists are being squeezed, slowly but consistently, between rising costs and static price margins. Smaller druggists are said to be in a particularly precarious position, according to the report, which states:

"In a drug store with annual sales of $20,000 to $30,000, it is difficult for an owner to obtain an income under present-day conditions that is as much as is available to an employee pharmacist with no investment, shorter working hours, and none of the risks and responsibility that go with ownership of a drug store.

"It is also shown that when the annual sales are under $20,000, such a result is not merely difficult—it is impossible . . . The store owner who is looking for every chance he can find to build up his own income can get no help from the results of drug stores without enough sales to be able to bring in profits that measure up to the investment and risks assumed."

Charts giving the average drug store costs, margins, and profits, both in dollars are particularly interesting. They show that the average percentage of profits is back almost to where it stood in 1938, after having risen during the intervening years to a high in 1943, and declining steadily. The percentage of profits in 1938 stood at 5.5, and in 1950 at 5.6. The high years were 1942, 8.4 per cent; 1943, 9.9 per cent; 1944, 9.8 per cent; 1945, 9.5 per cent; and 1946, 8.6 per cent.

However, not shown in these charts is the amount that the owner actually took out of the stores on the average. It will be noted that the reports include a salary for the owner in addition to the profit on the store. As the volume of sales rose, the salary credited to the owner was quite properly increased, until, in 1950, it was about two and one-half times the amount credited for salary in 1938. We have, therefore, prepared a table showing the average salary for each year, the profit for each year, the total of the two, and percentage of the volume of sales represented by this total income of the owner. It will be seen from this table that the dollar income of the owner has risen over the years from a low of $4,369 in 1938, to a high of $11,311 in 1948, followed by slightly lower figures of $11,249 for 1949, and $11,165 for 1950. The percentage of sales represented by this total income of the owner stood at 13.84 in 1938, and at 13.36 in 1950, with the high years being 1943 with 18 per cent, 1944 with 17.75 per cent, and 1945 with 16.4 per cent. However dollar income for 1950 is above any of these years.

However, the weakness of the druggist's position today is clearly indicated by the fact that average annual sales volume has declined during the past three years, showing that a downward trend has set in. When one studies the percentage chart of drug store operations, one sees that the cost of goods is fairly consistent at about 67 per cent, while the gross profit is also fairly consistent at about 33 per cent. However, due mainly to upward wage trends, expenses are tending upward. In a period when volume is declining, increasing costs can mean only one thing—lower income and eventually disaster. While these figures represent the average of the 1,188 stores reporting, a total of 23 per cent of these stores enjoyed net profits of 10 per cent of sales for 1950; 32 per cent of the stores had a net profit of 5 to 9 per cent; 20 per cent earned a net of 2 to 4 per cent of sales, and 13 per cent operated at a loss.

Comparing this data with the 1949 survey, the decline in profits for the 1950 operations show up clearly. In 1949, 25 per cent of stores reporting earned a net profit of 10 per cent of sales, 34 per cent earned 5 to 9 per cent, 20 per cent showed a net of 2 to 4 per cent, 10 per cent earned less than 2 per cent, and 11 per cent operated at a loss. The percentage of drug stores operating at a loss has increased from a low of 4 per cent in 1944, to 5 per cent in 1945, 7 per cent in 1946, 9 per cent in 1947, 11 per cent in 1948, and 13 per cent in 1950. Of course, as would be expected, this is far from conditions at the bottom of the great depression when in 1932, 34 per cent of the reporting stores operated in the red.

PERCENTAGE OF SALES TAKEN BY OWNER

Year	*Sales*	*Owner's Salary*	*Net Profit*	*Total of Salary and Profit*	*Sales Percentage to Owner*
1938	$31,569	$2,625	$1,744	$4,369	13.84
1939	33,982	2,391	1,937	4,328	12.73
1940	34,882	2,560	2,056	4,116	12
1941	36,005	2,417	2,464	4,971	14
1942	40,514	2,784	3,405	6,189	15
1943	46,916	3,753	4,628	8,381	18
1944	52,297	4,182	5,105	9,287	17.75
1945	62.038	4,342	5,877	10,219	16.4
1946	69,442	4,590	5,951	10,541	15
1947	75,520	5,200	5,362	10,562	14
1948	86,059	5,910	5,401	11,311	13
1949	83,641	6,320	4,929	11,249	13.5
1950	83,540	6,492	4,673	11,165	13.36

Drug store investment for fixtures and equipment has fallen to phenomenally low percentages of the gross volume of the stores. At the end of 1950 it stood at 8.5 per cent of sales for that year, and in 1949 it was

(Continued on page 540)

AVERAGE DRUG STORE COSTS, MARGINS, AND PROFITS

Expressed in Dollars

Year	*Sales*	*Cost of Goods Sold*	*Gross Margin*	*Proprietor's or Manager's Salary*	*Employees' Wages*	*Rent*	*Other Expenses*	*Total Expenses*	*Net Profit*	*Value at Cost of Merchandise Stock*
1938	$31,569	$20,993	$10,576	$2,625	$2,556	$ 997	$2,654	$ 8,832	$1,744	$ 5,341
1939	33,982	22,861	11,121	2,391	2,888	1,020	2,885	9,184	1,937	6,454
1940	34,882	23,412	11,470	2,560	2,809	1,036	3,009	9.414	2,056	6,582
1941	36,005	24,345	11,660	2,417	2,852	1,052	2,875	9,196	2,464	6,433
1942	40,514	27,545	12,969	2,784	2,890	1,014	2,876	9,564	3,405	6,184
1943	46,916	31,616	15,300	3,753	2,815	1,410	2,694	10,672	4,628	6,363
1944	52,297	35,283	17,014	4,182	3,660	1,308	2,759	11,909	5,105	7,926
1945	62,038	41,565	20,473	4,342	5,273	1,860	3,121	14,596	5,877	9,459
1946	69,422	46,995	22,427	4,590	6,270	1,950	3,666	16,476	5,951	10,487
1947	76,520	51,812	24,708	5,200	7,360	2,070	4,716	19,436	5,362	12,257
1948	86,059	58,043	28,016	5,910	8,720	2,150	5,835	22,615	5,401	13,779
1949	83,641	56,522	27,119	6,320	8,724	2,175	4,921	22,190	4,929	14,178
1950	83,540	56,142	27,398	6,492	9,018	2,220	4,995	22,725	4,673	14,808

Expressed in Percentages (Total Sales 100%)

Year	*Sales*	*Cost of Goods Sold*	*Gross Margin*	*Proprietor's or Manager's Salary*	*Employees' Wages*	*Rent*	*Other Expenses*	*Total Expenses*	*Net Profit*	*Annual Rate of Turnover*
1938	100.0	66.5	33.5	8.3	8.1	3.2	8.4	28.0	5.5	3.9
1939	100.0	67.3	32.7	7.0	8.5	3.0	8.5	27.0	5.7	3.5
1940	100.0	67.1	32.9	7.4	8.0	3.0	8.6	27.0	5.9	3.6
1941	100.0	67.6	32.4	6.7	7.9	2.9	8.0	25.5	6.9	3.8
1942	100.0	68.0	32.0	6.9	7.1	2.5	7.1	23.6	8.4	4.5
1943	100.0	67.4	32.6	8.0	6.0	3.0	5.7	22.7	9.9	5.0
1944	100.0	67.5	32.5	8.0	7.0	2.5	5.2	22.7	9.8	4.5
1945	100.0	67.0	33.0	7.0	8.5	3.0	5.0	23.5	9.5	4.4
1946	100.0	67.7	32.3	6.5	9.0	2.8	5.4	23.7	8.6	4.5
1947	100.0	67.7	32.3	6.8	9.6	2.7	6.2	25.3	7.0	4.2
1948	100.0	67.4	32.6	6.9	10.1	2.5	6.8	26.3	6.3	4.2
1949	100.0	67.6	32.4	7.6	10.5	2.6	5.8	26.5	5.9	4.0
1950	100.0	67.2	32.8	7.8	10.8	2.7	5.9	27.2	5.6	3.8

PHOTO COURTESY GERMAINE MONTEIL

Suntan Preparations

by Harry Hilfer

SUNTAN preparations in their present forms have been a fair sized block of the cosmetic market since their inception during the latter 1930's. Until that time various types of preparations were being sold whose efficacy was dependent on the natural ability of different natural materials to reflect sunlight. These preparations, however, were not as efficient as they could have been and it was not until intensive studies of the effects of different light spectra were made that materials were synthesized to block these light bands.

Briefly summarizing this work, it was fairly well demonstrated that harmful effects from sun exposure is due to the ultraviolet light which comes in contact with the skin. The shorter the wave length of the ultraviolet light the greater would be the erythemal effects on the skin. As the wave lengths become larger the erythemal effects decrease and there is a greater ratio of tanning as against erythemal effects. There is no sharp line of demarcation where erythema ends and tanning begins, but there are points in the spectral range where erythema is minimized and where an adequate amount of tanning is permitted. Most of the preparations on the market are designed to achieve this effect. For all practical purposes it would seem that the greatest erythema is produced by ultraviolet light in the range of 3,000 angstrom units and that wave lengths of 3,200 angstrom units exert erythemal effects of less than one per cent of the 3,000 angstrom

unit bands. It would therefore appear logical to formulate a preparation which would block light of less than 3,200 angstrom units and by this means greatly reduce this intensity of erythema. In this connection it should be also borne in mind that tanning effects are reduced as well.

In the evaluation of the effective sun screening agent, the life of the effective agency against sunlight must also be borne in mind, since it is possible that under the conditions of use chemical changes may occur which would inactivate its screening properties.

During the second World War the armed forces saw the necessity for preparations of this type because of the large numbers of men in tropical areas throughout the world. During that time, the Navy adopted preparations which combined both chemical and physical screening properties. The preparation consisted of a chemical sun screening agency in a non aqueous vehicle in which was suspended powders as well. As this article was being written an invitation for bids was issued by the Army Quartermaster Corps on a sunburn preventive preparation in which the specifications called for the use of a non aqueous vehicle consisting primarily of hydrocarbons and in which a list of sun screening agencies was given, wherein the manufacturer had the choice of any of the materials listed. This list is of special interest to the cosmetic manufacturers since it narrowed the field down to six different compounds. The compounds and the suggested concentration consisted of:

Glyceryl mono (p) amino benzoate	**3.0 per cent**
Escalol 75 A	**5.0 " "**
2 Ethyl Hexyl Salicylate	**5.0 " "**
Digalloyl Trioleate	**3.0 " "**
Homo Menthyl Salicylate	**8.0 " "**
Di propylene Xlycol Salicylate	**4.0 " "**

Escalol 75 A is described by the manufacturers as a mixture of salicylates.

In examining the chemical structure of these compounds we find that all of them contain substituted aromatic grouping, the substituent being either the hydroxy or amino grouping. These are the vehicles which impart to the agency its ability as a sun screening agent, while the remainder of the molecule is designed to impart their specific solubility characteristics and to enhance the sun screening properties.

All of these compounds may be regarded as capable of performing their function well and also to be free of any undue toxic or irritational effects. At least one of them, the Glyceryl mono *p* amino benzoate is also possessed of a slight anesthetizing activity as are most amino benzoates and when used would undoubtedly lessen any pain due to erythema.

Their incorporation into suitable vehicles is the problem that confronts the manufacturer. All of these substances show a good diversification insofar as compatabilities with different solvents are concerned and are capable of being incorporated in creams and lotions. In the method of use, however, usually at the beach one must expect that the film will be exposed to water and unless the preparation is an oil vehicle or other non aqueous vehicle, the film will be washed off. A vehicle which consists only of oil, on the other hand, though probably the better method of insuring the life of the film is not particularly desirable because of its tendency to pick up sand and cause it to adhere. There are some materials such as the fatty acid esters of mono hydric alcohols which are capable of application in films which are so thin that they are virtually non-greasy but for the same reason the amount of active agency applied per unit area would be so small that it would no longer function properly.

Solution in a solvent such as alcohol presents something of a problem in that in most cases the alcoholic concentration must be so high as to sting on application. Actually from the standpoint of effectiveness over long periods, insofar as greaseless preparations are concerned, alcoholic solutions containing oil soluble materials in about a 10-15 per cent concentration in addition to the chosen agency would be the most effective.

There are several aspects of incorporation in an emulsion which should be noted. It is true that such preparations will be removed more readily if exposed to moisture, but the viscosity of the final preparation can be controlled so that an optimum thickness of film may be applied. If the sun screen is incorporated with a relatively large quantity of the oil and then made into an emulsion, the oil itself, though present in conjunction with emulsifiers, will have a tendency to act as a protective barrier against the moisture. The protective effect is not as great as oil without emulsifiers but the control of the film thickness which such a product contributes will outweigh the imperviousness of the oily preparation. As far as the water repellent properties of the film, it has been demonstrated that it is capable of shedding water in a manner approaching straight oil, that is, causing the water droplets to ball up and roll off. This effect can be accomplished without causing the skin to feel greasy after application. In actual fact, I have not found that there is any appreciable difference in this respect as compared to a solvent-containing product, but this may be due to the differences in the thickness of the film on application with a subsequent greater concentration of sun screening agency per unit area in the case of the emulsion. This differential may account for lesser penetration of the undesirable ultraviolet light immediately after application, with increasing penetration as the film is washed off so that in a final comparison there may be no discernible difference.

There is one important factor which would favor the emulsion because of its easier capabilities in application so that an even film may be applied—as against an alcoholic solution with so low a viscosity that application of an even film is much more difficult. This factor would account for a greater evenness of the tan in the case of the emulsion as against the alcoholic solution. Without having studied or seen

(Continued on page 543)

Report on Vanilla

By Frank Child III

SEPTEMBER was a significant month as far as vanilla beans were concerned; it issued in the turning point of that market's price-cycle which has been on the way down since the 1942 high of $11.25. The Bourbon beans, at $3.25, were the lowest they have been since 1936, when that year's average was $2.90 a pound. Important signs have appeared since the beginning of September which strongly indicate the price has reached the lowest point and is now on the way up.

In 1950, the United States imported from all sources 2,312,005 pounds of beans, the largest amount ever to enter this country in one year; yet, this abnormal supply has been largely absorbed. The carryover stocks in those sources were reduced to a minimum by the enormous exports. The United States has imported a total of 640,000 pounds of beans through June of this year, as compared with 1,600,000 during the same period in 1950. Furthermore, the 1951-1952 crop, judging from early reports, will be quite a bit smaller than normal.

Madagascar is expected to provide from 450,000 to 500,000 pounds, and the Comoro Islands, 100,000, making a total of about 600,000. Added to the 600,000-pound carry-over, this means there will be approximately 1,200,000 pounds of vanilla beans available from those sources for the next 18 months. Under normal supply conditions, Madagascar and the Comoros should export twice as much, or 2,400,000 pounds. Mexico, the second largest single producer, reports a probable export of 250,000 pounds, compared with the normal yield of 300,000. Those crops from less important sources are also reported as small.

Tahiti beans, high in heliotropin content, and possessing a heavy flavor, are greatly desired in Europe, not so much in America; Seychelles beans are almost entirely consumed by England; and Java beans are of poor quality, usually reserved for cheaper extracts. Guadaloupe used to have a thriving industry, but this was decimated by cyclones and no longer produces enough to export. Puerto Rico has been experimenting with vanilla beans more than 30 years but has not been able to meet world competition because of limited land area, a large part of the arable ground being necessary to feed the dense population. Hawaii, occasionally reported as a source, provides some wild vanilla, but for non-commercial uses only.

Additional proof of a strengthening market is the relationship which has developed between the foreign shipper and American importer. Until very recently it has been routine for the exporter to send the dealer in this country periodic reports and price quotations. If interested in the offer, the dealer usually made a counter-bid by submitting a lower price to the shipper. The two then agreed on a compromise figure somewhere in between. Today, the shipper quotes one figure and will not accept counter-bids. If his price is too high for one importer, he contacts others until he completes the sale at his original price. The market, therefore, has now begun to favor the exporter, instead of the importer and consumer.

Many native growers in Madagascar, the Reunion Islands, and other important sources, have become discouraged with the low prices, and as in similar periods of the past, have migrated to more lucrative industies, such as sugar cane and coffee. By the middle

Artificial pollination of the vanilla plant. The parasite vine obtains its nourishment from the air.

PHOTO COURTESY DODGE & OLCOTT, INC.

of 1952 or sooner the reduced production will show effects, vanilla stocks will dwindle further, and the price will continue to climb. When the market value reaches a level attractive to the planters, those who strayed will return to their vanilla plantations to begin cultivating their untended vines. And so the cycle goes.

The odd part about this price cycle is that it repeats itself every seven or eight years because of the migratory practice of these planters who forsake the vanilla plantations when prices are on the way down and nurture them when prices are on the way up. The cycle is very pronounced as illustrated in the following range of Bourbon bean prices extending over the last 23 years. In 1928, the average value of the beans was $2.32, falling yearly thereafter—$2.20 in 1929; $1.80 in 1930; and finally, 72c in 1933. By 1934, six years after the downward cycle had begun, and the year following the 72c figure, the first advance occurred when the price jumped to $1.87, reaching $2.32 in 1935; $2.90 in 1936; $5.75 in 1939, and $11.25 in 1941, eight years after the low of 1933.

Even during the war when shipping lanes were blockaded, and exports were irregular, this progression persisted. The price was still $11.25 in 1942 and dropped to $9.12 in 1943, $8.87 in 1944, $7.87 in 1946, $6.50 in 1948, and $4.29 in 1950.

This month, October 1951, a new cycle is beginning. This one, like the others, has been caused by the very nature of the vanilla plant which, being of the orchid family, requires much care and takes a long time to reach maturity. When enough growers leave the vanilla plantations during a low-price period, like today, many plants are neglected and allowed to grow wild. Soon the over-all yield from these major sources is decreased, the available supply for export is reduced, and demand in the consuming countries becomes more acute. The price of the beans automatically begins to climb, and the migratory workers subsequently return. But, since it takes from three to four years for the vine to mature and bear fruit, and since the rundown plantations are not revived until the vanilla price has already begun to advance, there is a gap of some six or seven years from the time of low yield to that of high production. And finally, the cycle beings all over again as the large stocks of vanilla force the price down.

The vanilla plant presents many problems to the grower. As a parasite, the vine is planted next to a young tree, like the mango, and climbs up the trunk, sending out feelers, or aerial roots, which gather food and nourishment from the air. The vine flowers two to three years after it is planted and must be pollinated by hand on that particular day of flowering. Natives used to depend on the *Melipone* bee for pollination in Mexico, birthplace of vanilla, but this proved too haphazard a method for the modern world. It takes about nine months more before the green beans are

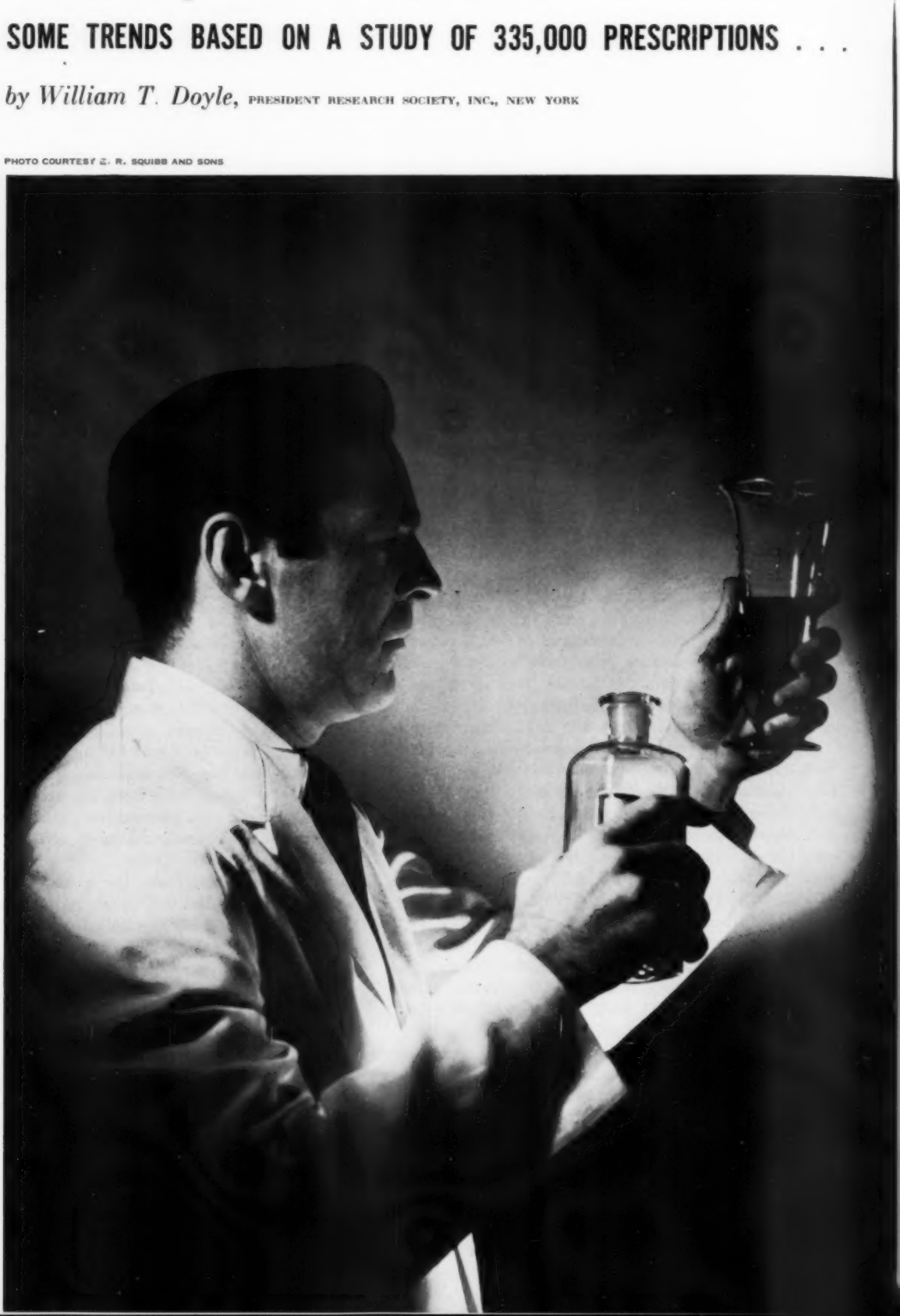
(*Continued on page 544*)

Prescription Business

SOME TRENDS BASED ON A STUDY OF 335,000 PRESCRIPTIONS . . .

by William T. Doyle, PRESIDENT RESEARCH SOCIETY, INC., NEW YORK

PHOTO COURTESY E. R. SQUIBB AND SONS



PRESCRIPTIONS are big business today. It is expected very shortly that one-fifth or more of all drug store dollar volume will come from the prescription department. It would appear worthwhile, therefore, to examine the trends, and map policies accordingly.

Just last month we came into possession of what is probably one of the earliest private professional market research reports on the pharmaceutical business. It covered the year 1930. Here is an interesting quote from this study, which reflects the economic conditions of the time.

"Prescription business has fallen off markedly. Stores where prescription sales formerly ran as high as 19 per cent of their total volume are now down to less than 5 per cent of total store sales. This condition has left a bad dent on the average store's profits. Apparently the present and future growth of the drug store is related to the skillful management of its prescription department."

Some Reasons for Prescription Volume Increases

Many changes have come about since 1930 to push the prescription business up where it belongs. The following are probably some of the more fundamental reasons for the remarkable growth of the prescription department.

1. Pharmaceutical manufacturers are spending much more money for research. In fact, it costs almost $30,000 per research worker to support such activity. From this important development storehouse has come new sex hormones, vitamins, sulfa drugs, antibiotics, hematinics, cortisone, and ACTH, and the antihistaminics to mention a few. It is easy to see what effects these contributions have had on prescription volume. Our studies reveal that 78.3 per cent of all prescriptions contain a so-called pharmaceutical specialty.
2. The U. S. population has increased 14 per cent in the last ten years.
3. Total spendable income has increased 169 per cent since 1940. Thus, more people can afford better medication.
4. More people are better-medical-care conscious than ever before. Blue Cross, World War II experience and widespread health education programs have all contributed mightily toward getting the public to seek medical attention early. Almost one-half of the U. S. population is covered by some form of medical insurance.
5. People are living longer, so they develop diseases which require the prolonged use of medication. It is estimated that almost 35 per cent of the U. S. population is 40 years old or over.
6. Children are being given better health care through immunization, and vitamin supplements. There are more than 13½ million children in the age-four-and-under class alone. 1951 promises to add almost 4 million new babies to this growing market.
7. More expensive medication has helped increase prescription volume, although our continuing studies reveal that almost three-fifths of all prescriptions are priced at only $1.50 or less.
8. Ten years ago the average prescription price ran about $1.00. Today it is close to $1.80.

A Case History

With the trend toward more attractive opportunities in the ethical pharmaceutical field, we find some well established drug manufacturers changing product emphasis from proprietary to ethical specialties. Just recently figures were made public by one prominent company which illustrates dramatically the constant change in the pharmaceutical business, and why it is necessary to spend large sums for research if profits are to continue.

	Year Ended June 30					*Nine Months*
Type of Products	*1941*	*1943*	*1947*	*1949*	*1950*	*Mar. 31, 1951*
Antibiotics	—	—	31.2	43.3	43.7	39.6
Vitamin Products (other than B_{12})	33.0	24.4	26.3	20.2	23.1	21.3
B_{12} Products	—	—	—	.3	4.6	8.1
Anesthetics	5.7	5.1	3.5	3.7	3.1	3.4
Sulfonamides	6.4	15.6	5.5	3.5	3.5	2.2
Other Professional Products and Specialties	27.2	34.5	17.0	18.4	13.1	15.3*
Home Necessities	27.7	20.4	16.5	10.6	9.9	10.1
	100.0	100.0	100.0	100.0	100.0	100.0

*No single product accounting for more than 2.6 per cent.

This table underscores how prescription trend data can help a company keep ahead or abreast of basic therapeutic changes. It also points up how the nature of a business can change in a relatively few years. Note particularly that *home necessilies* accounted for 27.7 per cent of the manufacturer's volume in 1941 while in 1951 it added up to only 10.1 per cent. Observe further that the antibiotics and vitamin products, including the B_{12} group, now account for almost 70 per cent of the company's total business.

It is agreed, then, that it is to every drug store owner's advantage to increase his prescription business to insure continued stability and profits. However, one comment we hear is "you have to stock too many specialty products to serve the physician properly." Actually what the average druggist probably means is the slow turnover of some products which are inadequately promoted by the manufacturers. To prove this point, here is an analysis of 335,000 prescriptions taken from over one hundred stores across the United States. The period covered in this study is all of 1950 and through June 1951.

*Leading Prescription Categories**	*Leading Categories According to Promotion Activity***
Vitamins and Hematinics	Vitamins and Hematinics
Sedatives	Vascular Products
Antibiotics	Ointments (exc. antihistaminics)
Antihistaminics	Antihistaminics
Analgesics	Antibiotics
Sulfas	Antacids
Antispasmodics	Antispasmodics
Vascular Products	Antiarthritics (includes cortisone and ACTH).

* Based on 335,000 prescriptions
** Includes direct mail, journal ads., detail effort

(*Continued on page 545*)

*Delivered before The Pharmaceutical Economics Section of the Amer. Pharm. Assoc., Aug. 1951, Buffalo, N. Y.

Newer Fungicidal Products

By Milton A. Lesser

IN A COUNTRY where "athlete's foot" is a common affliction, it is not surprising that the treatment of fungous infections should be a subject of great interest to both the public and the medical profession.

Recent years have seen considerable increase in the knowledge of these mycotic conditions and in the number of preparations for their treatment. Of course, as in other fields of medicine, wartime needs provided the stimulus to the development of newer fungicides as well as the means for their large-scale testing. Much of this work continues and new products are constantly being investigated.

Generally speaking, the fungous diseases may be divided into two main groups—the superficial fungous infections and the systemic mycoses. As remarked by Smith,[1] the superficial fungus infections of the skin, hair and nails are often chronic and resistant to treatment but they seldom affect the general health of the individual. In contrast, the much rarer deep mycoses are frequently fatal and present major problems in diagnosis and treatment. The highly specialized treatment of this second group of fungous infections is outside the scope of this discussion.

Fortunately, most fungous infections of the skin involve only the epidermis and its appendages, with comparatively little reaction of the underlying tissues.[2] The mycotic infections involving the skin, hair and nails are known as the dermatophytoses and include the following conditions: (a) tinea pedis (athlete's foot); (b) tinea corporis (ring-worm of the body); (c) tinea copitis (ringworm of the scalp); (d) tinea cruris ("jock itch," ringworm of the groin); (e) onychomycosis (nail infection); and (f) candidiasis (moniliasis), and "thrush," paronychia and vaginitis.[3]

It is a familiar fact that a considerable proportion of the population is affected at all times by fungous infections. The reported incidence of dermatophytosis ranges from a low of 7.5 per cent to a high of 89 per cent. According to Hopkins and his associates,[4] these variations probably reflect differences in diagnostic criteria rather than in actual incidence of disease. In their own investigations at Fort Benning, 24 per cent of the inspected infantrymen showed typical dermatophytosis of the feet and suspected dermatophytosis was seen in an additional 57 per cent.

Dermatophytosis of the feet is by far the most common of the fungous infections. It has been said[5] that 50 to 70 per cent of the male population have this condition and these figures seem to be borne out by surveys made on troops and on groups of college students. In industrial studies, Peck and his associates[6] found approximately 45 per cent of 2,123 workers were infected with tinia pedis. However, the condition did not appear to cause any appreciable loss of time among the workers.

Best known as athlete's foot, a term now used even by the medical profession, dermatophytosis of the feet is also called tinea pedis, trichophytosis pedis and ringworm of the foot. Most cases are caused by the widely distributed fungi, *Trichophylon purpureum* and *Trichophylon gypseum*. The onset of the infection is usually insidious and, in the milder states, may be practically symptom-free. The primary lesion usually consists of vesicles with patches of macerated epidermis and fissures between and under the toes. As the disease progresses, multilocular vesicles appear along the sides and undersurfaces of the toes and the sole of the foot. In severe cases, the skin becomes raw and eroded and the area appears swollen. Secondary, pyogenic infections often appear. Such symptoms as itching, burning and pain are often quite severe.[7]

Because of its dominant position, many antifungal preparations are designed primarily for the treatment of athlete's foot. Nonetheless, other types of fungous infections on other areas will respond favorably to the same products. Sometimes, however, it is necessary to modify the concentration of the fungicide or its vehicle in order to obtain optimal effects.

The need for such adjustment is quite apparent from Carslaw's[8] discussion of the diagnosis and treatment of tinea circinata (corporis), tinia cruris and tinea pedis. He noted that the difference between the three types of epidermophyton infection is one of situation. The lesion is the same in all cases; being modified only by the physical conditions. The infection can be transplanted from one area to another and in so doing its clinical appearance may become modified. Thus,

Note: Compound Undecylenic Acid Ointment NF, cited in this article and in the one on Polyethylene Glycols (September issue) is covered by patents assigned to Wallace & Tiernan Products, Belleville, N. J.

BLACK STAR.

if tinea infection is suspected, it is necessary to examine the whole body surfaces, the groin and the feet.

This authority stresses that treatment must be modified according to the position on the body of the infection, climatic conditions, and the intensity of the infection. However, applications should not be changed unnecessarily. Indeed, the commonest cause of unsuccessful treatment is overtreatment. Carslaw also advises that the mildest possible fungicide should be employed so as to avoid chemical dermatitis. It is especially necessary to watch for this complication in cases where stronger fungicides must be used in more severe infections.

This danger has been emphasized by others[7-9] who warn that incorrect treatment of superficial dermatomycoses, especially of the feet, probably causes more disability than the disease itself. Although overtreatment must be avoided, it may be necessary to try several fungicidal preparations before the most suitable agent is found for a specific case. Ointments are best applied at bedtime, being replaced by a suitable powder in the morning. Lotions and paints are also widely used, being especially valuable where ointments or pastes are not tolerated.

Of course a wide variety of preparations is available for the treatment of fungous infections. Many of the older products were based on keratolytics and fungicides

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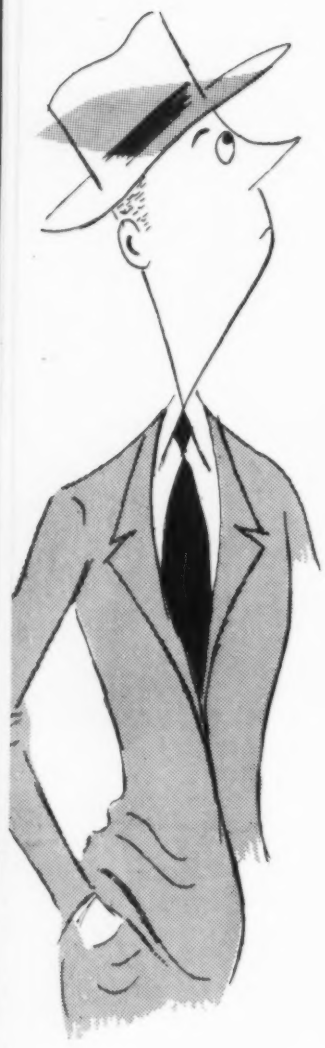
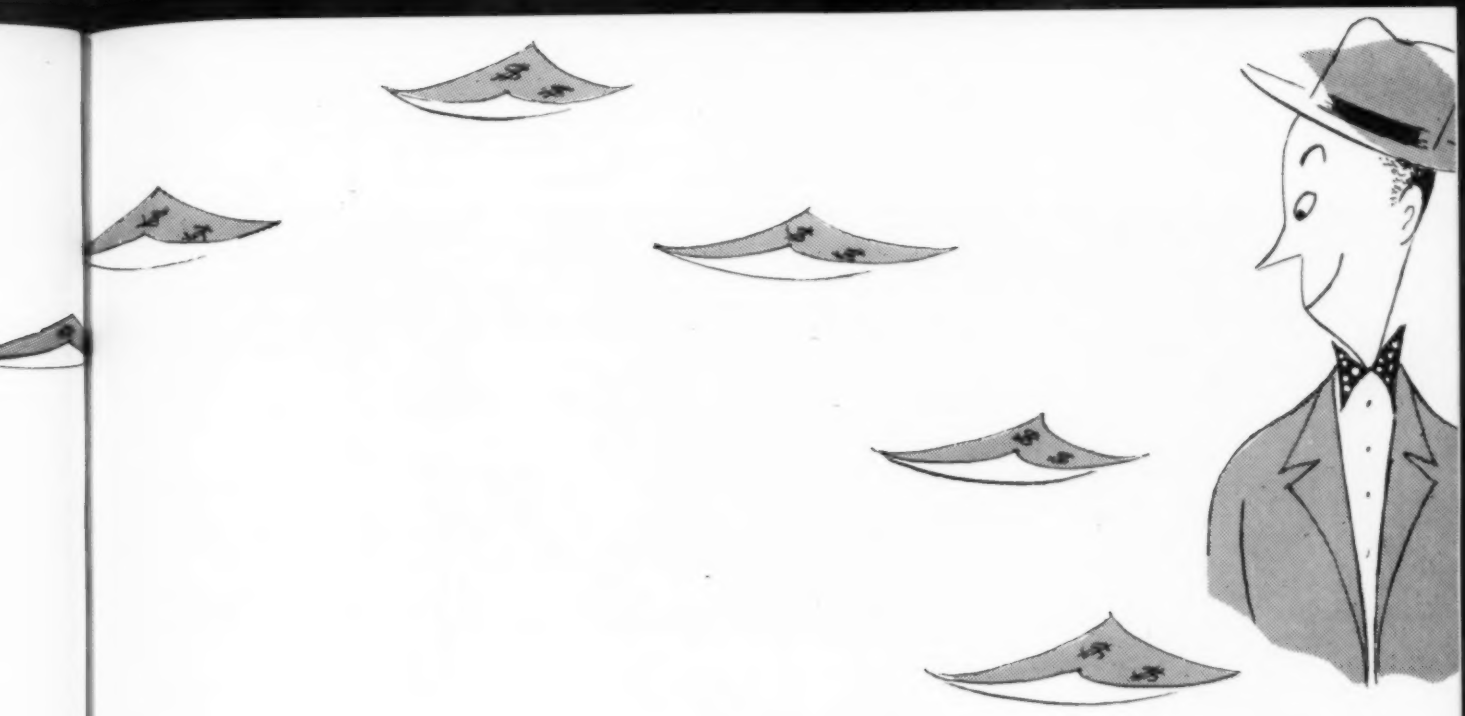


Pharmaceutical Pricing

INTERESTING are the ways in which the manufacturers in this industry are operating now that the production of pharmaceutical preparations has become big business, and now that the production and marketing of pharmaceutical preparations has definitely spread far beyond the closely-knit group of strictly pharmaceutical manufacturers. Not so many years ago, but at least prior to World War II, when new products were discovered, or when they were brought into this country from abroad, it was the general practice to sell these products at rather high prices and to keep them relatively high. True it was that research and development costs had to be paid for, but long after these amounts had been amortized, reductions in price were, for the most part, non-existent or minor in nature. True also was the fact that within this closely-knit group there were exceptions to this rule. But these were due mainly to the fact that one of the manufacturers had in some way managed to obtain a lion's share of the business in a particular product, and others had little to lose by bringing down the price in an attempt to broaden the market so that they could increase their own volumes.

In those days, manufacturers or importers thought more of evaluating a new and therapeutically valuable pharmaceutical preparation from the angle of what it would accomplish, than from the angle of what the preparation cost to produce and market. There never was any doubt in anyone's mind that many of these products were of untold value to sufferers from the conditions which they relieved or cured. However, large segments of these sufferers could not afford to use these preparations because of the cost. Therefore, the products were of limited value to the people as a whole.

There have been many instances in which the pharmaceutical manufacturers have indulged in sharp price-cutting, but this has generally been in quite widely used products, the main ingredients of which were purchased from chemical companies. Pharmaceutical manufacturers, in such instances, have even cut prices of such items below their cost, and then have demanded that the suppliers of the ingredients cut their prices so that the profits on these products could be restored. This type of price-cutting is generally the result of the insistence of a pharmaceutical manufacturer that he maintain his position in the product against those who are seeking to enter the field, or to widen their market in these items.



As an example of the maintenance of selling prices indulged in by some members of this industry—and a situation for which the pharmaceutical manufacturers were severely criticized—we might recall the attempt of the OPA during World War II to force these manufacturers to lower the prices on their vitamin preparations since the prices of the synthetic vitamins used in them, when bought in bulk from the chemical manufacturers, had been repeatedly lowered in price while the prices on the finished vitamin preparations had not been lowered to account for these savings in cost. The chemical manufacturers had cut the prices of the bulk vitamins as their costs declined and as research and development costs and plant costs were amortized, in order that greater use by more people might result. However, the pharmaceutical manufacturers, for the most part, did not see that this had any bearing on the prices of their finished preparations. The lower prices on some of the bulk vitamins did cause their use in food products to spread widely so that the public did benefit as the result of these lower prices, but not through any action on the part of the pharmaceutical manufacturers.

In many cases the action of pharmaceutical manufacturers in maintaining prices of their specialties at relatively high price levels during the life of the patent on the product has, indeed, been a short-sighted policy. For when the patent finally expired, chemical manufacturers were all ready to jump into production of the product and other pharmaceutical manufacturers were ready to jump into the preparation and marketing of it. If, in such instances, the company holding the patent had consistently cut the price on the product as its initial investments were amortized and as costs were reduced both from the production and marketing angles, the price would have been so low at the time the patent expired that there would be little in the product for chemical or pharmaceutical manufacturers to consider worthwhile. It is quite true that chemical manufacturers might be able to develop much cheaper ways of synthesizing these drugs than the method used by the original producer, but it should also be up to the originator of the product to constantly engage in research along these lines, or to associate himself with a chemical manufacturer who would do this for him.

Pharmaceutical manufacturers should realize the ill-will which high prices, main-

(Continued on page 540)

The Necessity for Research

EVEN though it might appear to many that with the developments of the past ten or more years in pharmaceutical preparations, the drug industry might be reaching a period at which the tempo of discovery might slow down, the industry is still very much in a state of flux. During recent years the industry has discovered, developed, and mass-produced products which have established practically complete control over a great many diseases which previously were just about completely uncontrollable. Some of the drugs have made possible almost immediate cure of diseases which previously resulted in weeks and months of suffering and hospitalization, attended by a high percentage of mortality. Other drugs have relieved the suffering and incapacitation caused by some chronic diseases so that the people suffering from them can now lead a more or less normal life.

We have commented on many occasions on the rapidity in the turnover of the drug products used for the treatment of certain diseases and how this has made it essential for pharmaceutical manufacturers to be constantly engaged in research to develop new and better products, not only to replace the existing products of competitors, but also to replace their own products before some other manufacturer does it for them. This type of thinking and of company activity was recently referred to by John E. McKeen, president of Chas. Pfizer & Co. Mr. McKeen, who not so long ago described the position of his company and other companies in the same industry by saying: "We live in the shadow of obsolescence," recently spoke on the research activities of his company. He finally summed them by saying: "We constantly work to put ourselves out of business, or the other fellow will."

This is the type of thinking has now just about completely permeated the drug business. No longer is it possible to discover a preparation for treatment of a certain disease and then sit back and expect to do a good business in the product for a long period of years, for the product might be replaced tomorrow with something better.

During recent years a large number of the discoveries in this field have been in the nature of specifics for the treatment of diseases for no specifics were previously available. Just about two decades ago the number of specifics could be counted on the fingers of one hand and included quinine for malaria, a drug which is being just about completely replaced in the treatment of malaria by other chemicals. Today the number of diseases which can be treated by specifics is a long one which must be approaching one hundred. Not that there are one hundred different drugs to treat these diseases. As a matter of fact, some of the products which have been discovered are specifics for as high as fifty of these diseases. But the fact is that today a doctor can give specific drugs and bring about almost certain and immediate cure of conditions which were formerly treated mainly by letting the diseases run their courses with the doctors and nurses trying to support the various functions of the body by artificial means and alleviate the suffering while this was going on.

As the result of these recent developments, the number of diseases which are still uncontrollable has been sharply reduced in number. Therefore, while research for drugs which will establish control over the relatively few diseases which remain to be conquered by means of drug therapy, is being intensively engaged in, research, intensive research is also being carried on to discover still better drugs to replace those of comparatively recent origin.

In the field of antibiotics alone, many companies are constantly screening soil samples in the hope that they will turn up products which will attack some of the diseases which are so far uncontrollable. Then there is the possibility that such a product might cover as wide a range of diseases as any product now available in addition to one or more new ones, that it might have less side reactions than any antibiotic now on the market or no side reactions at all, and it might be easier and cheaper to produce. In addition it might lend itself to a larger number of dosage forms than all or many of the existing products. The antibiotic researchers see no limit to the number of diseases which can be controlled by these products. They are of the opinion that somewhere there exists the right one for all ills that the flesh is heir to. Therefore, we can look forward to continued intensive research into the possible discovery of new antibiotics for some years to come. For even though

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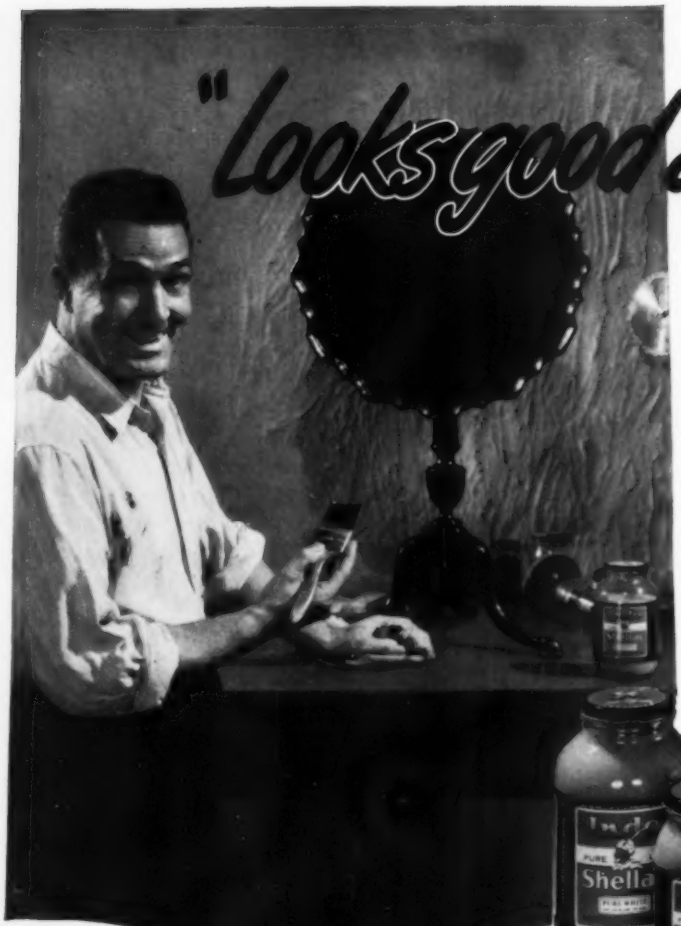


"Looks good as new!"

Refinishing furniture is only one of the dozens of uses the man of the house finds for shellac. And in thousands of homes you'll find a supply of Indo pure white shellac on hand. Users know this fine product gives them the results they want.*

The brightly lithographed closures used to seal these products are Crown Lug Caps. They provide dependable protection against oxidation of the product and are easily removed and replaced with a simple quarter turn on or off. The liners in these closures are selected especially for this type product, too.

For many years, an ever growing number of food and drug packers have been turning to Crown for help in choosing the closure that is best for their individual products. Crown's wealth of sealing knowledge, and research and analytical laboratories are also available to you. Why not let us work with your product so we may suggest the correct closure and liner? There is no cost or obligation. Crown Cork & Seal Company, Baltimore 3, Md. *World's Largest Makers of Metal Closures.*

* *Indo pure white shellac is a product of Southern Shellac Mfg. Co., Memphis, Tennessee.*

CROWN CLOSURES

Approved by millions of housewives

Packaging and Selling

SELLING BY SELF-SERVICE

Advertising agencies continue jubilantly alert to the growing movement for self-service selling in retail stores. These advertising folks have it all figured out that with the disappearance of personal selling in a retail store, the big selling instrument to be used by the manufacturer of branded goods will now more than ever be consumer advertising and more and more of it.

Some of these advertising agency people who have formed some kind of an acquaintance with the operation of a retail store are admitting that, together with increased consumer advertising, the brand manufacturer must pay more attention to the kind of display which he gets within a retail store. There have been plenty of retail tests which show that almost any retailer can kick the pants off the sales figure for any brand, no matter how popular, by giving it an unfavorable shelf position, and can on the other hand substantially build up the sales of some other advertised brand by giving it a favorable shelf position. It would seem evident that the advertising agency planning boards are headed toward including methods for securing favorable store display on an equal partnership with plans for consumer advertising.

However, this industry, both in the pharmaceutical and in the cosmetic branches, gives clear-cut factual evidence that there are other ways of arriving at successful sales volume than through the preferred agency method of consumer advertising. We do not mean by this statement to infer any criticism of the effectiveness of consumer advertising or its essential importance to many kinds of products and to our economy. It may be that these other avenues of success, which do not lean very heavily on consumer advertising, are mainly significant in that they point out with fair clarity that there are deep inherent weaknesses in any sales plan which depends exclusively on consumer advertising to build a business.

The pharmaceutical industry, i.e., the manufacturer who sells his products by the so-called ethical method, provides a vivid example of the potent forces of indirect selling and what might be classified in a professional sense as word-of-mouth advertising. Not many years ago we saw the power of this method of selling completely overwhelm consumer advertising and its accompanying merchandising methods, for vitamin products.

In the cosmetic industry there is a large group of manufacturers commonly known as the class or prestige group. These people use selective distribution and in most cases lean heavily on the department store for distribution.

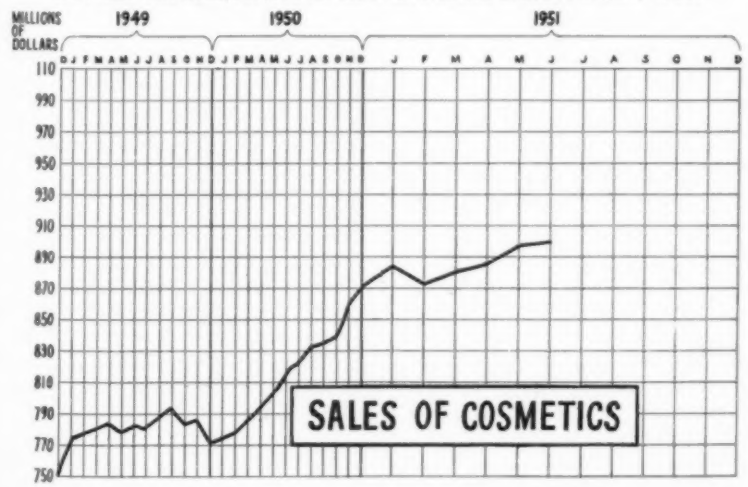
These perfume and cosmetic manufacturers do use consumer advertising, but in a limited way. The primary selling effort of these manufacturers has always been directed toward a preferred in-store position. In their expenditures for selling are included such things as full or part-time demonstrators, store cooperative advertising, store P.M.s, purchase of displays pace and the development of store promotions financed by the manufacturer. At any time when circumstances force a reduction of the selling budget, consumer advertising has always been chopped before expenditures in stores.

As to the success of this method it ought to be enough to say that the majority of famous names in the industry have operated in this way.

Years ago advertising people used to think of advertising as creating an actual "consumer demand" for the advertised product. When doubts arose as to whether the results acquired really could be called a demand, "consumer acceptance" became a favored word, and this in turn was succeeded by the words "consumer preference."

Now with our experiences during shortages, when there was clear evidence in every industry that the preference for leading brands had strong elements of a demand in it, many advertising men are returning to the words "consumer demand" or some variation such as "consumer franchise."

Retail sales of cosmetics for the twelve months ended with June 1951 totaled $898,369,000. This compares with $893,596,000 for the twelve months ended with May 1951 and with $822,837,000 for the twelve months ended with June 1950.



There is evidence all around us that when a brand becomes known to the public and becomes popular because it has been tested and approved and the price is right, that demand does arise for that brand. But so many factors enter into this success, including word-of-mouth advertising, recommendation of friends, the increasing visibility of the product in retail stores as an indication that many other people are finding it preferable and the accumulated recommendations of many retail sales clerks, that it would be very difficult to grant consumer advertising more than the recognition that it is one of the potent factors in arriving at this result.

Self service may easily bring an increase in consumer advertising. At the same time, it will not by any measure eliminate other known methods of selling, but may well strengthen them proportionately or even more than consumer advertising. For instance, we personally believe that word-of-mouth advertising is increasing in sales potency as the volume and variety of new products arising from technical improvements increasingly confuse the consumer. If we go over to self-service and eliminate the retail store clerk, this whole fertile field of word-of-mouth advertising, and any way it can be directed and manipulated, will increase in effectiveness.

At the same time, the power of the retailer and his ability to select the merchandise he wants to sell, within branded limits, to divert or beckon to the consumer will also gain real strength.

Pill Color

The use of color in interior decoration has taken this country by storm and as a topic of conversation gives pretty good competition to babies and food in women's conversations. We didn't expect color in interior decoration to come very near this industry but apparently the first alarm has been sounded. Maybe it's a trend.

Here's what S. A. Mortland of the Pioneer Drug Co., Yakima, Washington reports:

"This morning a patient rushed in with her prescription number and asked if we would give her one of those Pabalate tablets," Mr. Mortland wrote to A. H. Robins Co., Richmond, Va., recently. "She was downtown to buy paint and linoleum for her bathroom and wanted to be sure to get them in the same shade as the Pabalate tablets. She had left her sample at home!"

The Pabalate tablet is a fine clear yellow. The company replied to Mr. Mortland suggesting the Persian Rose color used in Pabalate-Sodium. Free in case the lady wishes to redecorate her bedroom.

Season Variation Out!

For many products in this industry, especially for cosmetics, the fact of a seasonal variation has been accepted as a matter of course. Manufacturers relax or abandon their advertising or sales efforts in off seasons and retailers put the product under the counter and more of less forget that they exist until the next accepted sales season comes around.

The deodorant has been one of these products with an accepted seasonal variation and the amount of advertising placed by manufacturers during the cold weather months for deodorants has added up to a very insignificant expenditure.

Jules Montenier doesn't think this way in marketing Stopette Spray Deodorant. Using the theme "In the Close Warmth of Winter Wool and Winter Rooms, It's Summer so far as Perspiration is Concerned," he is running a substantial winter advertising campaign in magazines and radio.

Sound Familiar

Everybody selling to retail stores has the problem of getting his display material used without too much waste. Here's what one man has to say about it. The man is Seymour Mintz, Advertising Manager of the Admiral Corporation.

"In our type of operation we know that cardboard displays are piled up on the dealer's floor. They are down in the basement. If they ever need paper for salvaging, they could pick up tons of it at the dealers, especially appliance dealers, in the United States. We have gone on to another deal. Instead of going in and saying, 'Here is a cardboard display, put it up when you get time,' we furnish the dealer with a window display service. We go in and say, 'Look, our campaign starts next Monday. I would like to have a window display company put in an Admiral window. Will you let me have it? You don't have to worry about putting in the merchandise. We will do all that.'

"If you will pardon me, the dealer can be the laziest son-of-a-gun on two feet. He has made a lot of money in the last three years in television and appliances and he has been so instilled with shortages that he doesn't know what it means to go out and do some work that he should be doing. He forgets about the fact that pre-war we never had this lush selling season. It was fighting every day on how to beat your competitor, pushing doorbells, and everything else. He has forgotten that maybe one phase of advertising is driving them in the store but that he has to back up that advertising with his own selling. He may be a little lazy now. We hope we can educate him to get off his fanny and go to work and we are trying hard."

Santa Claus Street for the Druggist

Modestly proclaiming that the McKesson and Robbins Christmas promotion in Puck is the greatest retail gift promotion in the history of the drug industry, this massive advertising spectacle is now getting under way.

We suppose it is the biggest because it is certainly being conducted with the largest amount of noise and hullabaloo that we recall thundering over a promotion. Certainly in this advertising and in all of the associated promotional activities that have been tied in with it the participants have something thoroughly dramatic and thoroughly forceful to sound off about.

The advertising part of this program consists of an eight-page full-color section of gift items advertising sponsored by McKesson and Robbins and sparked by the theme: *"THIS YEAR TRY YOUR DRUGGIST FIRST!"* The circulation and readership of this eight page Christmas catalogue, to appear in Puck, the National Comic Weekly, will exceed 12,500,000 copies for an estimated readership of more than 50,000,000 people.

Just to make sure that everybody will know about this eight-page smash in Puck of December 2nd, it will be announced in a full page in the Saturday Evening Post and full Fall schedules in a list of industrial and advertising trade magazines.

So that no lagging druggist will fail to appreciate this opportunity of participating in the lush Christmas business which to a large extent has been beating a path right by his doors, the 1,500 salesmen of McKesson and Robbins and the regional staffs of Henry B. Gilpin Co., Kauffman-Latimer Co., Smith, Klein and French, Inc., will call on over 35,000 druggists in more than 10,000 retail communities, with enthusiasm and trade helps to put his store on Santa Claus Street.

~~MILLS PLASTIC~~ Bottles
shape up to build product sales

CUSTOM BOTTLES—Give free play to your imagination in planning the use of custom shaped ~~CHILD-PLASTIC~~ BOTTLES for your products. By combining our engineering and molding skill with our exclusive patented process, we can produce bottles in a surprisingly wide variety of shapes and sizes—and in virtually endless colors. We also make closures and atomizers to your special needs.

STOCK BOTTLES—Feather-light Polyethylene stock bottles are available in two styles: Mills "Cylinder" in 2-4-6-8 ounces; Mills "Oblong" in 2-4 ounces. Both styles are available in natural Polyethylene or your preferred color. Atomizers, closures and tubing are also available in stock styles and sizes.

Let us or our sales agent show you how we can create product selling bottles for you today.

Manufactured under Patent No. 2,515,093. Other patents pending.

ELMER E. MILLS CORPORATION
2930 NORTH ASHLAND AVENUE • CHICAGO 18, ILLINOIS

Sales agent for the United States: **W. BRAUN & CO., CHICAGO:** 300 N. Canal St. • **NEW YORK:** 715 Fifth Ave. **DETROIT:** 139 W. Maple, Birmingham, Mich.

To give it a custom look that sells on sight, add a clever closure and label to stock bottle #A-8478.

SPRUCE UP with no mark-up

Now you can spruce up your line . . . give it a family resemblance and *still* keep within commercial limits on container costs.

HOW? Pack in Duraglas stock-mold bottles personalized for you with unique color treatment, individual closures and eye-stopping labels.

Owens-Illinois manufactures more than 1400 different stock-mold bottles . . . maintains a highly talented staff of packaging designers who can help you create an unusual package at no extra cost.

Decide now to find out how creative know-how applied to low-cost stock-mold containers can work for you at the point of sale. Call your local Owens-Illinois office today.

Duraglas bottles are protectors of quality

TRADE MARK REG. U.S. PAT. OFF.

OWENS-ILLINOIS GLASS COMPANY • TOLEDO 1, OHIO • BRANCHES IN PRINCIPAL CITIES

Just to show you what advertising of this sort can pile up to, this advertising, plus the reprints which will be furnished to druggists would, if piled page by page, reach 100 times as high as the Empire State Building and reach twice around the world.

C. I. B. S.

There is a young organization in this industry called the C. I. B. S., which stands for Cosmetic Industry Buyers and Suppliers Association. This organization is young in years, since it was founded just a few years ago, young in the average age of its members, since this was one of the primary purposes of the group, and young in spirit. In a very short time, memberships passed the 160 mark and this organization in many ways has been showing an enlightened interest in the welfare of the industry.

It is an encouraging and heart warming thing to find the younger men in the industry, the ones whom destiny will some day select to run this industry, take such an alert and vital interest in so many industry activities.

We congratulate the C. I. B. S. on the way in which they have built up a strong, successful organization and the way in which they are conducting their affairs and on their active, conscious realization that the health of their organization and their own business life depends upon the health of the industry and on the forward progress of the industry.

Hormone Slogan

Bonne-Bell, Inc., Cleveland, Ohio cosmetic manufacturer has just adopted the new slogan, "Don't Let Your Face Tell Time."

R. W. Middendorf, Bonne-Bell's Sales Manager says that this slogan will be the basis of a comprehensive, estrogenic hormone cream campaign based upon a long program of research.

How Small Are You?

The Department of Commerce has just defined small business in a release which took 90 pages. According to this definition a company can be small in one industry but large in another, because the definition considers such factors as the number of employees in a company required to do a certain volume of business which would place it among the leaders in that particular industry.

If you would like to know whether you conduct a small business or not, here is about the way it works out: A toilet preparation manufacturer who employs up to 225 people conducts a small business. In this industry 36 per cent of the business is done by small companies.

A pharmaceutical manufacturer is small as long as he employs 300 or fewer people. Small pharmaceutical manufacturers do 34 per cent of the total business.

An essential oil company is small so long as they employ 100 or fewer people and all of these small companies do 42 per cent of the business in that trade.

Package Design Protection

Protection for an original package design has just been strengthened by the injunction granted to Miller Brewing Co. by a Wisconsin Court restricting Blatz Brewing Co. from using a bottle which is too similar to the bottle used for Miller's High Life Beer.

One Way to Sell Perfume

Perfume manufacturers all admit that Ciro hit a home run with their sampler package of perfumes at $2.00. They could hardly help admitting this because store orders and store enthusiasm over this promotion made it very clear to every visiting salesman.

There has been a strong feeling of conviction in many parts of the industry that this Ciro promotion and the way in which consumer buying-responded to it proved, more than anything else that has been done in the industry, that women want perfume, will buy it if it is within the shopping range of what they feel they should spend. More important that price is not as important a factor in determining quality, as the industry has always believed. The Ciro promotion indicated to many that a market for perfume exists very far beyond the volume which is now being done by the industry.

Urged by many retailers, Ciro has planned a Fall repeat performance. At the same time, several other perfumers have joined the band wagon with a similar presentation.

Coty is now in the middle of an extensive advertising campaign in 111 newspapers in 100 cities together with space in several magazines and quite a line-up of cooperative advertising with a package of this sort. Each of these packages contains seven Coty perfumes with each bottle holding about ⅔ of a dram. The price of this package is $2.00. An interesting plus in this promotion is the $10,000 cash prizes which would go to 308 winners who buy a package of the seven perfumes and write 25 words or less in answer to the question: "Which is your favorite Coty perfume and why?"

Double Duplication

It looks as if cosmetic manufacturers are not satisfied with their accomplishments of the last twenty years and, are so duplicating the number of cosmetic products that they have completely bewildered the consumer on brand names and brand values and have presented the retail trade with an inventory problem that is cramping the style of their fast moving products. Now these manufacturers seem obsessed with not only doubling every product that every competitor puts on the market, but they are also going to duplicate their own products and their own lines.

We commented elsewhere here that both Hudnut and Rubinstein now have two parallel lines of men's toiletries, to a certain extent competing with each other. At the same time, Toni is starting to market Prom, a new type of home permanent kit.

Prom is said to reduce the working time connected with home waving by cutting out the "complicated neutralization." According to R. N. W. Harris, many women will want Prom because they want to try the newest in home permanents; at the same time, however, many will want to continue using Toni because so many of them have had excellent results with it over the years. They may not want to take a chance on a new product. Where all this kind of thinking will lead the cosmetic industry to is anybody's guess. All we know is that there is a growing opinion that the industry is already weltering in its present confusion of a multiplicity of duplicated products.

Package Team Work

Team work makes the successful package according to the new book "Packaging" just published by Lippincott & Margulies, Inc., New York industrial designers.

This book, the second in a series, shows before and after photographs of some thirty leading firms and discusses briefly the problems of each in sales, production economies, shipping, advertising, television, etc. and its solution.

Men's Toiletries

There are reports in the trade that men's toiletries are growing in consumer preference and that sales are increasing. Certainly there seems to be renewed activity on the part of manufacturers

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DEFENSE CONTRACT PACKAGING?

We have equipment and experience for producing metal containers and components for defense packaging. Write for information and quotations or call your nearby Alcoa Sales Office.

Millions and millions of reasons for specifying...

ALCOA STERICAPS

FORMERLY SOLD AS ALSECO SEALS

Many millions of Alcoa Stericaps have served leading pharmaceutical houses since these Alcoa Closures were introduced 12 years ago. Most widely used closure of its type, the Alcoa Stericap guards your product three ways:

1. tamperproof seal immediately reveals meddling.
2. cover cap prevents superficial contamination after opening.
3. inner ferrule seals contents securely—insures sterility until the last cc is used.

ALCOA GOLDY CLOSURES

provide perfect protection for your "one-shot" package. Resist rust and corrosion in any atmosphere, can't jar loose, can always be opened easily by tearing off the slotted tab. Ideal for small food and medical packages.

ALUMINUM COMPANY OF AMERICA • 1702 K GULF BUILDING • PITTSBURGH 19, PENNA.

entering this field. The Richard Hudnut men's line is starting an extensive promotion with a slogan "For the Man with a Mark of Success." This line includes cologne, shaving lotion, lather shaving cream and brushless shaving cream as well as a combination body and deodorant powder. Special gift sets are part of the line as well as sets to meet the demand for gifts to military men.

As the trade knows, Hudnut already has the long-established men's line, Courtley.

With a recent showing, Rubinstein exhibited two different complete lines of men's toiletries, one of which is new for this year.

Is This It?

When Mary Hall was 75 years old she decided to sell her little business to somebody who could bring youth and energy to it. This business, "The Milky Way," had been operating with a patented formula for some years with beauty salons and with some drug and department store distribution. Unfortunately, the younger person who took this business over soon after became ill and just recently died.

Now Mary Hall, in her 80th year, is again looking for a partner who can take over this business and who can advertise and market the new Milky Way home facial, an improvement based upon combining two products which have been sold for some years.

Milky Way is located at 65 Division Street, Coldwater, Michigan.

Public Relations In Buying

Very few companies think of their purchasing department in terms of public relations and when they happen to give particular thought to any of their suppliers, it is rarely in terms of establishing cordial relations for any such far-fetched idea as public relations.

There are times when the tough buyer decides that he ought to be a good fellow and in a painfully poor act tries to become one of the boys. But this is not normal in business, and what suppliers have always felt was normal was that very few buyers establish their purchasing on a basis which earns the frank respect of all sellers.

There is, however, a substantially growing realization on the part of business that public relations in buying can have an important place along side of public relations in selling. This is not only because there are times in the life of every business when such cordial relations can be an important or even a vital asset but also because even in normal times there are many things which a supplier can do for a customer which he does not have to do and usually will not do unless he has a real respect for that customer which goes beyond the mere placing of the order.

Suppliers are human beings who purchase as consumers and they are human beings who get around a great deal and whose word-of-mouth opinions carry quite a great deal of weight if for no other reason than that there are so many of them. In addition, anybody who has studied the progress and development of any industry is impressed with the more than substantial way in which suppliers have contributed to that industry's growth in inventions and ideas. There are very few companies in any industry which have not profited in a very real way from the advice, the ideas and the technical knowledge of their suppliers. It is easy to note in getting around the industry that the company which has established open and cordial relations with its suppliers and courteous attention to all salesmen has received a flow of ideas and technical information which from time to time has been a distinct competitive advantage to them as compared to a company which believes that a supplier is someone to brow beat and push around.

All of this rambling is inspired by the recent action of Pillsbury Mills, Inc., a very considerable enterprise, in employing an outside research sociologist from the University of Minnesota to find out what suppliers think about the company. The object of this research is to discover: (1) what the company's suppliers really gripe about and (2) how Pillsbury rates with competitors in the minds of suppliers, (3) how Pillsbury rates with the supply salesmen who call on them and just what opinion these salesmen have formed about Pillsbury, and (4) whether the company's buying policies and methods of buying are earning the respect of supply salesmen and supply management.

Department of Commerce Monthly Retail Trade Report

Retail sales of all kinds in drug and department stores showing sales for the month of July 1951 as compared with the same period in 1950.

	Department Stores	*Drug Stores*		*Department Stores*	*Drug Stores*
Atlanta	–18	+4	Minneapolis	–18	+7
Baltimore	–8	X	Milwaukee	–13	+7
Birmingham	–15	+1	Newark	–9	X
Boston	–6	X	New York	–5	+7
Chicago	–11	+1	Philadelphia	–9	X
Cincinnati	–16	+6	Pittsburgh	–17	X
Cleveland	–14	+5	Providence	–16	+3
Dallas	–22	–5	St. Louis	–17	X
Detroit	–17	–2	San Francisco	–15	+9
Los Angeles	–20	–5	Seattle	–18	+10

Specialized Cosmetics

Anyone who thinks that the cosmetic industry has limitations which confines their products simply to the improvement of human appearance, should meet Marion Phillips. This lady has developed a specialized line of cosmetics for expectant mothers.

Mrs. Phillips, who is a mother of two children and who spent several years in the maternity field and owned a maternity shop, became well acquainted and critically interested in the cosmetic problems a woman encounters during maternity.

The four products which Mrs. Phillips has on the market have been accepted by the Committee on Cosmetics of the A. M. A. Two of these cosmetic products are designed to meet the strain upon the tissues of the skin which takes place when the skin is stretched during pregnancy.

While maternity may not provide a large cosmetic market, quite a few million women are prospective customers each year. There are undoubtedly many specialized markets of this sort open to the cosmetic industry, each of them providing a substantial solid small business. We have good evidence of this in such products as Little Lady Toiletries of Helene Pessl and in other sectional markets and for sectional purposes where cosmetics provide a very definite service and find a ready specialized market.

What 50 productive years have meant to your industry

This year, we at American Can Company are observing our 50th anniversary.

Offhand, you wouldn't think our anniversary would be very important except to the 33,000 people who work for Canco. But may we remind you that this anniversary celebrates 50 productive years that have helped your industry grow and prosper?

During this half-century, Canco's growth and co-operation with your industry have brought forth widespread process and product improvements—opening new markets for many kinds of drugs and cosmetics and helping you sell in all markets more efficiently than ever before.

The people of Canco are proud of this and the many other Canco contributions to this industry.

And it is our pledge for the years ahead that the inventiveness and ingenuity so characteristic of Canco will continue to explore and open new areas of usefulness to your industry and the consumers it serves.

1901—50TH ANNIVERSARY—1951

CANCO

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New York · Chicago · San Francisco · Hamilton, Canada

Doin's

Armour Laboratories are producing Tryptar for use in hospitals only, at the present time. The drug a pure form of the enzyme, trypsin, is used for cleaning dead tissue from wounds and body cavities, and does not affect living tissue.

Faye Laboratories are introducing a new nail polish containing Nylon, said to be easier to apply, faster drying, and longer wearing than other polishes. It is being tested in the Detroit area and will be released in other regions soon.

Parfums Corday is presenting four of their fragrances in a new purse-size solid eau de toilette ensemble, packaged in a grey and silver suede box, and selling for $2.00 plus tax. The Purse-Solids include handy sticks of Toujours Moi, Fame, Zigane, and Jet.

Henry K. Wampole & Co., Inc., has prepared Sulfatryl which contains sulfadiazine, sulfamerazine, and sulfamethazine in different densities, insuring uniform triple-sulfonamide suspension.

Bristol-Myers recently introduced Ipana Penicillin Tooth Powder in a test market area in the New England States and is now distributing it nationally. It is sold only on the prescription of a dentist or a physician.

The Plax Corp. has developed an unbreakable dispenser-tube of polyethylene with a capacity of 4 cc. to be used as a pocket package for small quantities of medicine, cosmetics, or other products. It is available with or without a cap and may be filled with conventional filling equipment.

Winthrop-Stearns Inc. has introduced new effervescent soluble tablets of crystalline penicillin for easier administration to infants and children. They come in sizes of 50,000 and 100,000 units of penicillin, and are supplied in boxes of 12 and 100.

The S. E. Massengill Co. has added two new prescription preparations to its line of products: Capsules Semhyten, for the treatment of essential hypertension and as a prophylactic measure in malignant hypertension, and Perle Semvimin, as a diet supplement to promote well-being of the patient.

Abbott Laboratories have come up with Selsun Suspension, an orange-colored liquid preparation for the treatment of seborrheic dermatitis of the scalp. It leaves the hair clean and easy to manage, and does not have any disagreeable after-odor.

Pfizer has released a new form of terramycin for the treatment of external ear infections called Terramycin Otic. The dosage form consists of a vial of 25 mg. of crystalline terramycin hydrochloride and a dropper bottle of 5 cc. of a mixture of 95 per cent propylene glycol and 5 per cent benzocaine. When mixed, the resulting solution remains stable under refrigeration for 48 hours.

Dermetics has introduced its new Automatic Eyebrow Pencil with eye-catching counter cards which hold nine slender, white, gold-stamped pencils—three of each shade, brown, blue and black.

Winthrop-Stearns Inc. has a new hematinic preparation, Fergon Plus, designed for therapy in most types of anemia encountered by physicians.

C. H. Stuart & Co. has re-designed its bottles and labels to obtain increased uniformity in bottle, label and closure appearance and establish strong family relationship between its line of cosmetics and toiletries.

Harriet Hubbard Ayer is presenting a liquid foundation, First Blush, which can be used with or without powder. It comes in graduated shade from pale ribbon pink to copper tones for the dark skinned.

Parfums Charbert has added Breathless Eau de Toilette to its fragrance line, a version of Breathless perfume. With this addition, Charbert has re-packaged all its Breathless products in cerise and gold.

Boyle-Midway has added a third fragrance to its Wizard Spray Deodorizers in the handy squeeze-bottles, called "Lilac Scent," which is a companion product to "Pine Scent" and "Spring Bouquet."

Abbott has prepared two more new products, Cofron Elixir with Vitamin B_{12} for the treatment of secondary and nutritional anemias, and Phenurone, a synthetic anticonvulsant for the treatment of epileptic disorders.

Schering Corp. announces the preparation of Dormison, a hypnotic which induces calm, peaceful sleep and is free from habit-forming properties of barbiturates. It is rapidly metabolized, has no cumulative action, no toxic effects on prolonged use, and no prolonged suppressive effect.

Armour Laboratories have reduced the price of all unit packages of Acthar, their brand of ACTH, by approximately 25 per cent.

Nion Corp. is offering two new items, Hemonutron Plus, a hematinic; and Doxitol, a product exclusively for radiologists for the treatment of radiation sickness and injury.

E. R. Squibb & Sons has released four new products: Engran, a vitamin-mineral dietary supplement formulated to assure a nutritionally perfect pregnancy; Rubragran, a high potency oral hematinic supplying vitamin B_{12}, folic acid, vitamin C, iron and liver; Rubramin Soluble Tablets, a preparation to facilitate vitamin B_{12} therapy in children; and Rulivan, which supplies both liver injection and vitamin B_{12} in a single intramuscular preparation.

These handmade bottles, available in seven sizes from one dram to eight ounces, are excellent containers for perfume and toilet water. They can be supplied with attractive, fired-on ceramic labels.
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Designers and manufacturers of fine glass containers
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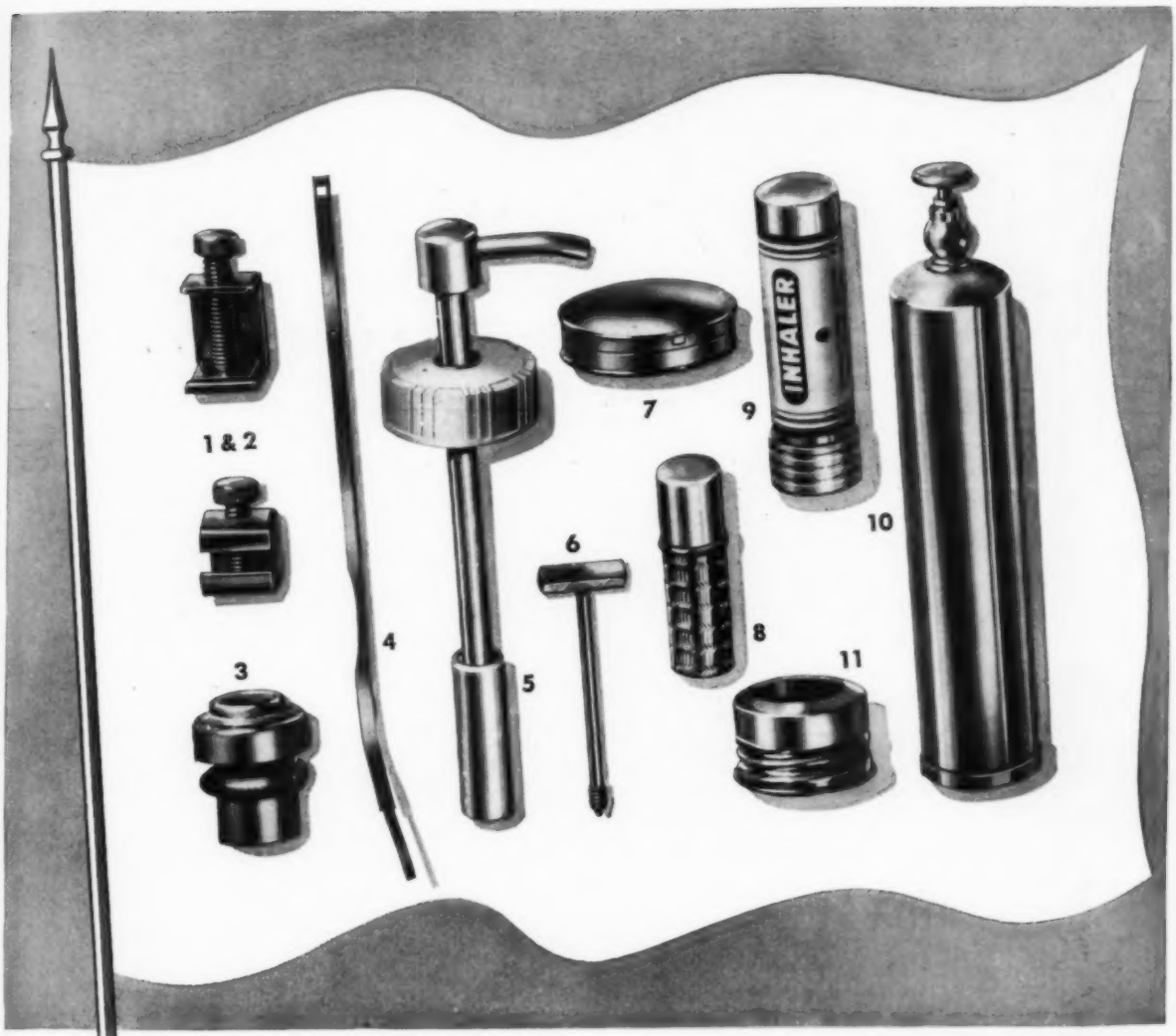

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Indicate the items you need in the coupon. Or if you'd like special ones developed, inquire of Scovill . . . suppliers to the United States Government in every emergency since 1802.

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4	☐ Band Bail Assembly	9	☐ Nasal Inhaler
5	☐ Lotion Dispenser	10	☐ Ethyl Chloride Container
6	☐ Hypodermic Plunger Rod	11	☐ Filter Drip Cap

My problem is none of the above, but . . . . . .

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NAME . . . . . .

COMPANY . . . . . .

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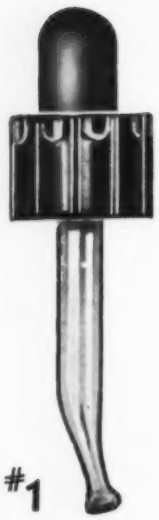

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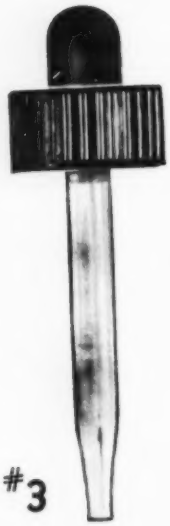

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are available in a wide variety of styles and sizes; plain or CALIBRATED in any color to mark specific dosages.

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CAPS

of plastic or metal, can be furnished in a complete range of sizes and colors.

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in an attractive modernistic style in Amber, Blue, Green or Clear glass, are available, complete with dropping parts, in the following sizes: 2 cc., ⅛, ¼, ½, 1 and 2 oz.

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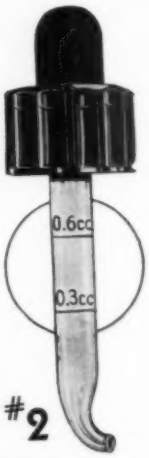
An inexpensive extra that adds great convenience to the use of your preparation. The dosage you desire in the color you specify is accurately and permanently printed on the dropper glass. Trade-marks and firm names can also be imprinted.



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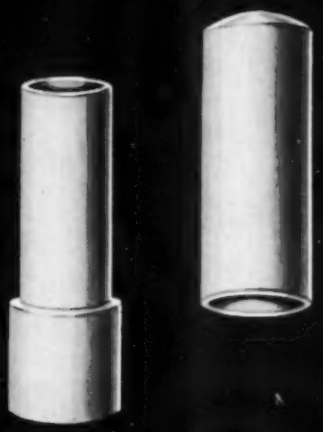

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- ☐ Cedarleaf
- ☐ Cedarwood
- ☐ Cherry Laurel
- ☐ Cinnamon
- ☐ Citronella
- ☐ Clove
- ☐ Copaiba
- ☐ Coriander
- ☐ Eucalyptus
- ☐ Geranium
- ☐ Grapefruit
- ☐ Guaiacwood
- ☐ Labdanum
- ☐ Lavandin
- ☐ Lavender
- ☐ Lemon
- ☐ Lemongrass
- ☐ Limes
- ☐ Orange
- ☐ Patchouly
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News . . .

Thomas with Ives-Cameron

Harold O. Thomas has been named vice-president of Ives-Cameron Co., Inc., in charge of all sales operations. In 1943 he had been on the sales staff of Ayerst, McKenna & Harrison Limited as a detailman and later became district sales manager for the Southern California district. He was promoted to assistant sales manager in 1950.

HAROLD O. THOMAS

Parke, Davis in Panama

Parke, Davis & Co. plans to establish a new Latin-America headquarters in the free zone at Colon, Panama, according to W. R. Jeeves, director of overseas operations. The drug firm which has been serving its Latin-America customers from New York for the past 50 years, will be the first American pharmaceutical firm to take advantage of a franchise in the free zone at Colon, states Mr. Jeeves.

Edward Castano, who has been New York Manager of Parke-Davis' Inter-American Corporation, moved to Colon this month to direct the new headquarters.

The company has already acquired one building and will have another one before the end of the year.

Stauffer Readies Citric Acid Plant

Stauffer Chemical Co. is constructing a large plant for the production of citric acid 8 miles south of Pismo Beach, Calif. which is scheduled for completion late this fall. A new process is to be used that will involve a technique of accelerated fermentation that may be unique in this field, according to the company.

Macauley Elected DCAT Chairman

Charles M. Macauley, an executive of the Pro-phy-lac-tic Brush Co., was elected chairman of the Drug, Chemical and Allied Trades section of the New York Board of Trade at its 61st annual meeting at Shawnee-on-Delaware, Pa., from September 20 to 22. Additional men who will serve during the fiscal year are Lloyd I. Volckening, president, the Ivers-Lee Co., as vice-chairman; Hugh S. Crosson, McKesson & Robbins, Inc., re-elected treasurer; Helen L. Booth, re-elected secretary, and James G. Flanagan, vice-president of S. B. Penick & Co., re-appointed counsel.

The personnel of the new executive committee elected at the September 21 business session includes: Murray Breese, Murray Breese Associates; Ralph A. Clark, J. T. Baker Chemical Co.; Stanley I. Clark, Sterling Drug Inc.; Harold F. Cummings, Vitamerican Oil Corp.; Donald S. Cushman, Innis, Speiden & Co.; Dudley Dunlop, Mallinckrodt Chemical Works; Russel J. Fosbinder, the Maltbie Laboratories, Inc.; Claude A. Hanford, Pharmaco, Inc.; J. David Hayden, Gelatin Products div., R. P. Scherer Corp.; Wm. W. Huisking, Chas. L. Huisking & Co., Inc.; H. C. McKenzie, Ortho Pharmaceutical Corp.; George S. McMillan, Bristol-Myers Co.; W. Boyd O'Connor, Ayerst, McKenna & Harrison, Ltd.; Fred G. Singer, E. I. duPont de Nemours & Co.; Sydney N. Stokes, Merck & Co., Inc.; and Stephen F. Urban, E. R. Squibb & Sons.

CHARLES M. MACAULEY

Cron With Bristol Labs.

Dr. Martin J. Cron has joined the staff of Bristol Laboratories, Inc., as a member of the biochemical research department, according to Dr. Amel R. Menotti, vice-president and director of research.

Sterling-Winthrop Appointments

Six new research assistants have been appointed to assist in several studies being undertaken at the Sterling-Winthrop Research Institute, according to Dr. Maurice L. Tainter, director.

Samuel Schalit will work under Dr. Bill Elpern in one organic chemistry laboratory, devoted to the development of new pharmaceuticals. Richard John Stenger will work under Dr. Royal Cutler in another organic chemistry laboratory. Frank C. McKay will assist Dr. Noel Albertson in a third organic chemistry laboratory, where work is progressing on amino acids.

William J. Kammerer and Theodore J. Mayor will work under Dr. Edward Homiller in the chemical development laboratories, where supplies of new pharmaceuticals are made for clinical investigation. Miss Mayo French has joined the staff of Dr. Aubrey A. Larsen in an organic chemistry laboratory.

Armour Appointments

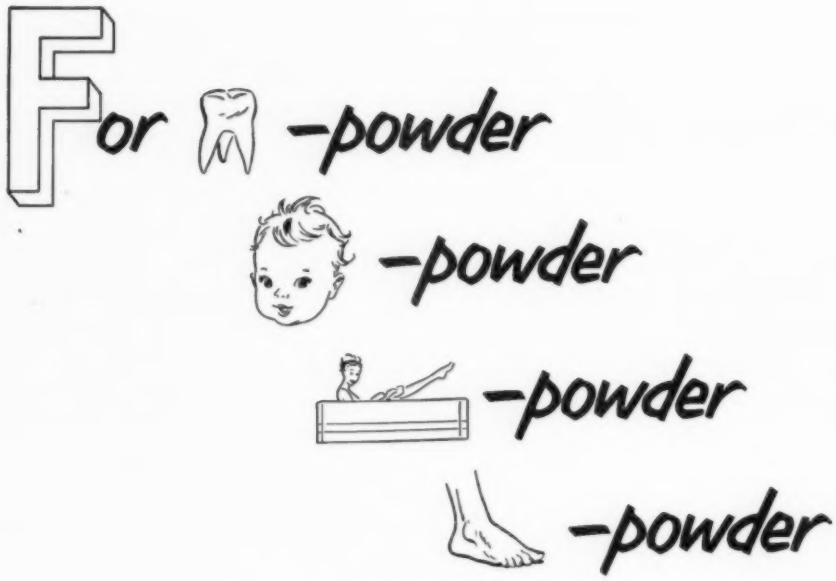
Dr. Marvin C. Ziporyn has been appointed assistant medical director, and Dr. Emil A. Fullgrabe, regional medical director for the southwestern region, of the Armour Laboratories, according to Thomas E. Hicks, vice-president in charge of the Laboratories.

Heyden Export Corp. Formed

Heyden Chemical Corp. has formed the Heyden Export Corp., a wholly owned subsidiary which will specialize in sales of antibiotics, pharmaceuticals and chemicals in Western Hemisphere countries. Paul van der Stricht, secretary and a director of the parent company, has been elected president of the export subsidiary.

Heyden's export sales are this year at an annual rate in excess of $5,000,000, or more than twice that of the 1947 export sales' total of $2,400,000.

PAUL VAN DER STRICHT



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Eastern Division: 122 E. 42nd St., New York 17 | Central Division: 135 So. La Salle St., Chicago 3 | Pacific Division: Russ Building, San Francisco 4

Dr. Carter Joins SKF Labs.

Dr. Kenneth Carter, British physician and pharmacist, has joined the foreign division of Smith, Kline & French Laboratories as director of development. He was formerly affiliated with Glaxo Laboratories, Ltd., of London, as director of their Argentine company.

DR. KENNETH CARTER

McKesson Christmas Gift Program

McKesson & Robbins, Inc. has made a joint announcement with Puck-The Comic Weekly, revealing a nation-wide Christmas Gift program amounting to over $430,000 in a single-issue advertising section of Puck-The Comic Weekly and its affiliates together with 15 other cooperating independent Sunday comic sections. The over-all promotion involves an expenditure of well over $600,000.

More than 50,000,000 family members in more than 10,000 cities and many smaller communities will see the first ads in the December 2 comic sections followed by a continuing series between that Sunday and Christmas.

Groundwork for the drive began in the Spring when Robert P. Davidson and Kenneth Hurd, general manager and advertising director, respectively, of Puck, met with Vice-President H. C. Nolen of McKesson & Robbins.

Those manufacturers in the trade who will be represented in the December 2 Gift Section in addition to McKesson & Robbins are the Procter & Gamble Co., Cheramy, Inc., DeVilbiss Co., Pro-Phy-Lac-Tic Brush Co., Northam Warren Corp., Allen B. Wrisley Co., Seiberling Latex Products Co., Tek Hughes, Bourjois, Inc., the Barbasol Co., John H. Breck, Inc., Bristol-Myers Co., Bymart, Inc., Coty, Inc., Mohawk Brush Co., Shnefel Brothers, Eagle Rubber Co., Inc., Hudnut Sales Co., Inc., Doeskin Products, Inc., and Landers, Fray & Clark.

Aceto Chem. Reduces Alcohol Price

Aceto Chemical Co., Inc., have announced a price reduction in cetyl alcohol, which will permit the use of this odor-free alcohol in products hitherto impractical because of cost. Samples and specifications are available upon request from the company at 82 Beaver St., New York.

ROY CLARK

Clark Elected Arner Secretary

Roy Clark, chief chemist of the Arner Co., has been elected secretary, according to Dr. Niels C. Klendshoj, executive vice-president. He had formerly been a chemist for John T. Milliken & Co. and Wm. R. Warner & Co.

Wren Promoted by Sterling

Paul C. Wren, sales manager for Sydney Ross in Brazil, has been appointed assistant vice-president of the Sydney Ross Co. and of Sterling Products International, Inc., according to David M. Corcoran, president. The two units are subsidiaries of Sterling Drug Inc.

Pfizer Promotions

Howard J. Taylor has been promoted by Chas. Pfizer & Co. Inc. to the position of manager of District No. 4, Buffalo; William B. Billmire has become manager of the new Detroit district; Courtland H. Barwick, manager of the southeastern district at Charlotte, N. C.; Lane H. Linner, manager of the Minneapolis district; and John P. Matheu, manager of the new Southern California district.

Norman Bullard has become office manager in the antibiotic division at Brooklyn, and Seymour Taylor has been named assistant director of the antibiotic sales training program.

Dr. Michael S. Ambrose and Dr. William J. Farley have joined the medical service division.

Sorbitol Position Improved

The production of sorbitol has increased steadily during recent weeks, according toK. E. Mulford, general manager of the Atlas Powder Company's industrial chemicals department. He added that, while the new plant scheduled for completion late this year has not yet been finished, various sections of the new facilities have been cut into the existing plant which has greatly increased the capacity. The company expects to be able to increase the present production by nearly 100 per cent when the new plant goes into operation.

Amer. Pharm. Co. Moves

The American Pharmaceutical Co. has expanded its facilities and moved its offices and laboratories to 120 Bruckner Boulevard, New York 54, N. Y.

Left to right, Donald C. Berry, advertising director of McKesson & Robbins; Kenneth C. Hurd, advertising director of Puck—The Comic Weekly; McKesson President George Van Gorder, and Vice-President H. C. Nolen; and Robert P. Davidson, general manager of Puck discussing their nation-wide Christmas Gift program involving well over $600,000.

Creative Perfumery

sells your products

Creative Perfumery is the art and science of producing the correct, the perfect fragrance for any given product. More . . . **Creative Perfumery** is the dynamics of Fragrance applied to modern merchandising for easier selling . . . for more satisfied customers. With original notes, subtle compositions and imaginative harmonies **D&O Creative Perfumery** can become a compelling and successful factor in your Sales picture. Consult D&O.

D&O ESTABLISHED 1798

DODGE & OLCOTT, INC.

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ESSENTIAL OILS AROMATIC CHEMICALS • PERFUME BASES • VANILLA • FLAVOR BASES

Pfizer Antibiotic Sales Conference

Chas. Pfizer & Co., Inc. held its first annual antibiotic sales conference on September 24 at the Barbizon Plaza Hotel in New York. John E. McKeen, president, and Thomas J. Winn, antibiotic sales manager, opened the meeting. Talks given by top executives included a prediction of the future of antibiotics by Mr. McKeen, a survey of future production capacities by John L. Davenport, executive vice-president, and an outline of sales prospects by Fred J. Stock, vice-president in charge of sales. The 400-odd members of Pfizer's sales and executive staffs who attended the conference, viewed a sound-slide film tracing the company's development from its beginning 102 years ago through the discovery of terramycin.

John J. Powers, Elmer C. Otto, George A. Anderson, and Albert A. Teeter, retired executives, were introduced to the group as important in the molding of Pfizer policy in past years.

Special guests at the conference were John McPherrin, formerly editor of *American Druggist*, and Dr. John O'Neill Closs, executive secretary of the American Pharmaceutical Manufacturers Association, who spoke on "Public Relations and the Pharmaceutical Industry," and "The Pharmaceutical Industry," respectively.

Following the conference, the detail men engaged in a four-day intensive detailing of over 10,000 doctors in the metropolitan New York area, a feat which would normally take five months.

Cundiff Promoted by Parke, Davis

Marke Cundiff, assistant manager of the sales training department, has been promoted to manager of the sales training department, Parke, Davis & Co., according to Graydon L. Walker, director of U. S. and Canadian sales.

Clyde R. Brandon, sales manager Henry K. Wampole & Co., addressing general sales conference in Philadelphia at opening Session held on August 6 in the Hotel Warwick.

Dr. Page Visits Parke, Davis

Sir Earle Page, Federal Minister of Health in Australia, met with Harry J. Loynd, president, and W. R. Jeeves, director of overseas operations, Parke, Davis & Co., last month, to discuss the availability of drugs to that country. Dr. Page was interested in the company's research facilities and the possibility of their extension to Australia, where the firm formerly had a branch for many years in Sydney.

Dr. Dutchess on European Tour

Dr. Charles E. Dutchess, vice-president and medical director of Schenley Laboratories, Inc., is in Europe on a six-week tour of inspection of the pharmaceutical industry abroad. He attended the World Medical Association Conference in Stockholm from September 16 to 20 as a representative of the Association of medical directors. He will return to this country October 22.

Burroughs Wellcome Promotions

C. F. Baker has been appointed advertising manager of Burroughs Wellcome & Co. (U. S. A.) Inc., and F. D. Loyd, supervisor for the company in the Pittsburgh-Cleveland area.

Stokes Named Merck Sales Mgr.

Sydney N. Stokes, manager of the New York branch of Merck & Co., Inc., has been appointed to the new position of sales manager of the northeast region. He will direct the activities of Merck representatives in sales to medicinal manufacturing accounts and distributive drug outlets in New England, northern New Jersey, and the New York metropolitan area. He will also continue to serve as New York branch manager.

McCarthy Recovers from Illness

Maurice J. McCarthy, formerly vice-president of A. Gross & Co., has recovered from a lengthy illness following a recuperative period in Canada and at his home at 141 St. Marks Place, Staten Island. He was with the Gross Company from 1930 to 1950. He plans to re-enter the fatty acid field in the near future.

Dr. Moore with Vick Chem. Co.

Dr. Maurice L. Moore, director of research and development for Smith, Kline & French Laboratories since 1947, joined the Vick Chemical Co. research staff in an advisory capacity October 1, according to E. L. Mabry, president.

MARKE CUNDIFF

C. F. BAKER

F. D. LOYD

Vandewater Named Greeff President

Ira Vandewater, vice-president and comptroller, has been elected president of R. W. Greeff & Co., Inc. to succeed R. H. de Greeff, who has become chairman of the board. Mr. Vandewater joined the company in 1918, having before that time been with National Aniline and Chemical Co.

Mr. de Greeff has been associated with Greeff since 1906, when he joined the London firm. The American company was established in 1914, with Mr. de Greeff as president.

R. H. de Greeff, left, recently elected chairman of the board, R. W. Greeff & Co., talking with Ira Vandewater, elected by the directors to succeed Mr. de Greeff as President.

Heyden to Form Canadian Company

Heyden Chem. Corp. and Shawinigan Chemicals Ltd., subsidiary of the Shawinigan Water and Power Co. of Montreal, have formed a new Canadian company which will manufacture initially formaldehyde and pentaerythritol, according to a joint announcement by John P. Remensnyder, president of Heyden, and V. G. Bartram, Shawinigan Chemicals president.

The two companies will share equally in the stock ownership of the new company which will construct a two-million-dollar plant at a site to be selected in Canada. There will be an annual capacity for production of 30 million pounds of formaldehyde and three million pounds of pentaerythritol.

Farley with J. T. Baker

Walter H. Farley, formerly with Chas. L. Huisking & Co., has joined the J. T. Baker Chemical Co.

Mansfield Named Sales Manager

Bruce W. Mansfield, formerly manager of the midwestern branch, has been named sales manager of the eastern division of Bristol-Myers Products division, and will be assisted by Irving Newfield. He has been succeeded as sales manager of the midwestern division by R. R. Schirk, formerly assistant branch manager.

BRUCE W. MANSFIELD

Dr. Enloe Awarded Legion of Merit

Dr. Cortez F. Enloe, Jr. was awarded the Legion of Merit by the Air Force on September 4, for his work as a consultant to the USAF Medical Service during the war, when he completed research on the effects of bombing on health and medical care. Major General Harry G. Armstrong, Surgeon General of the Air Force, presented the medal at a ceremony in the Pentagon.

With Food Research Labs. 26 Years

Mona Oser, chief biologist, has completed twenty-five years of service with Food Research Laboratories, Inc.

Attend Management Program

Elmer B. Vliet, director of control, and Dr. Edward J. Matson, assistant director of research, Abbott Laboratories, are attending the 20th session of the Advanced Management Program of the graduate school of business administration of Harvard University from September 12 to December 7, according to Dr. E. H. Volwiler, president. The program is attended by industrial executives chosen by their companies for special training.

R. R. SCHIRK

New Amer. Cyanamid Building

American Cyanamid Co. has consolidated its several office and warehouse locations in Los Angeles into one newly constructed building at 2300 S. Eastern Ave., which was formally opened September 27. The 64,000 square foot building occupies a seven-acre site in the Central Manufacturing district and is held by Cyanamid under a long-term lease calling for total rental of about $1,000,000.

Among Cyanamid executives whose offices will be in the new building are Sheldon Dahl, West Coast manager in charge of sales and manufacturing of the industrial chemicals and plastics and resins divisions; Edward Larson, regional manager of Lederle Laboratories division; and H. L. Oak and W. D. Walker, West Coast department heads of Calco Chemical division.

Forms Hed Pharmaceuticals, Inc.

Dr. Harry E. Dubin, for the last ten years technical director of U. S. Vitamin Corp., and formerly director of the biochemical department of Metz Laboratories, has formed his own corporation (Hed Pharmaceuticals, Inc.) for the manufacture and distribution of professional drug specialties. Address of the new company is 2 Hamilton Ave., New Rochelle, N. Y.

LeMens Resigns from Miller Labs.

John C. LeMens has resigned as director of sales for E. S. Miller Laboratories, Inc., in order to devote some time to a business he owns in Detroit. He plans to re-enter the pharmaceutical field within a short time.

Mr. LeMens has been in this field since 1917, having been associated with E. R. Squibb & Sons, Hoffmann-La Roche, Organon, Inc., and Miller Laboratories, respectively.

Empress Molded Closures are available in many colors —provide package distinction for your product.

For that distinctive look–use Molded Closures

You give your product sales appeal that's distinctly yours when you complete your package with a new Owens-Illinois plastic closure.

Plastic closures can be molded in brilliant, smooth-looking colors to match or contrast with label designs. They're warm and pleasant to the touch.

O-I plastic closures won't rust . . . won't stick . . . won't corrode, and they give a positive seal and reseal.

Molded to exact specifications, private designed closures can be tailored to the most rigid production requirements.

No matter what market conditions may be, plan now to keep your product in the *habit* of selling by having Owens-Illinois design your package of the future.

CLOSURE DIVISION — OWENS-ILLINOIS GLASS COMPANY

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HOW CAN ISCO PRODUCTS WORK FOR YOU?

in the Drug and Cosmetic Industry

Turning dark to light is not magic when you use Adsorbols. These natural, chemically activated and scientifically controlled clays are effectively used for the bleaching and deodorizing of oils, fats, fatty acids and waxes. Literature gladly sent upon request.

Innis, Speiden & Co., Inc. sells over fifty types of waxes which are used in different industries. Some use them for a glossy surface, others for water repellency, and still others for oil absorption. When you need a wax call on ISCO for the right wax for the right use. Above, ISCO Refined, Crude and Flaked Carnauba Wax.

Iscolized Gums eliminate presoaking, they are processed to give quick dispersion. These are only two features of one of the new products developed by ISCO to cut down manufacturing time.

You'll like ISCOOPERATION!

When it comes to raw materials for the drug and cosmetics industries, it will pay you to investigate ISCOoperation. Every step of the way, from selection of raw materials down to the careful control of quality, you'll stand Innis, Speiden way out in front. Our laboratories and our technical consultants will be glad to help you on any problem involving an ISCO product. Write today for full information on ISCO products for your own use. You'll like ISCOoperation—every step of the way.

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SAN FRANCISCO • LOS ANGELES

SUBSIDIARY: E. S. BROWNING CO., INC.
SAN FRANCISCO · LOS ANGELES

Beauchamp With Lueders 25 Years

Wilfrid Beauchamp, manager of the Canadian branch of George Lueders & Co., celebrated his 25th anniversary with the company on September 7, when he was presented with a service pin, watch, and gifts from the employees and the company, followed by a luncheon at the Drug and Chemical Club. He is the fiftieth member of the Veterans Organization of the company.

Erdmann Appointed by Parke, Davis

Charles A. Erdmann, formerly secretary-treasurer of Lakeside Laboratories, Inc., has been appointed assistant to the controller of Parke, Davis & Co., according to Harold W. H. Burrows, vice-president and controller.

CHARLES A. ERDMANN

Heyden Enlarging Antibiotic Div.

Heyden Chemical Corp. has started a multi-million-dollar construction program at its Princeton, N. J., antibiotic division, which will double present production capacity for pencillin and other antibiotics, according to John P. Remensnyder, president. The company will make use of the $3,600,000 Certificate of Necessity recently awarded by the Defense Production Administration to help meet the emergency need for greatly increased penicillin production, and will file for an additional certificate of necessity to carry out the expansion program.

Plans have been completed for construction of five new buildings at the Princeton Antibiotic Division.

TGA Convention Dates

The Toilet Goods Association plans to hold its annual conventions for the next three years at the Waldorf-Astoria Hotel, New York, on the following dates: 1952, May 13, 14, and 15; 1953, May 12, 13, and 14; 1954, May 11, 12, and 13.

"Uncle" Jake Manheimer Honored on 75th Year in Industry

Jacob Manheimer, president of J. Manheimer, was guest of honor at a luncheon at Toots Shor's restaurant on September 13, presented by the Cosmetic Importers, Buyers & Suppliers Ass'n. on the unparalleled record of his 75th year in the essential oil industry. Ray Schlotterer, managing director of the Essential Oil Association, toastmaster, at the luncheon, paid the highest tribute to Mr. Manheimer in an address which touched upon some of the highlights of his illustrious career. More anecdotes and expressions of deep respect for the privilege of being able to associate with such a capable and honorable man were also mentioned in brief addresses by younger men in the industry. First of these speakers was Edward V. Killeen, who has been associated with Lueders & Co. for 60 years. He was followed in turn by William H. Rowse, Norda Essential Oil & Chemical Co., 50 years in the industry; Mike Lemmermeyer, Aromatic Products, 44 years; A. L. Van Ameringen, Van Ameringen-Haebler, 40 years; George Uhe, George Uhe & Co., 40 years; Val Fisher, Dodge & Olcott, Inc., 40 years; Frazer V. Sinclair, editor and publisher of *Beauty Fashion*, associated with the industry for over 30 years; Steve Mayham, executive vice-president of the Toilet Goods Association, in the industry over 30 years; Gerard Danco, Gerard J. Danco, Inc., president of the Essential Oil Association, also in the industry over 30 years; and Louis Gampert, Felton Chemical Co., 20 years.

"Uncle" Jake Manheimer was born 87 years ago in 1864, and twelve years later landed a job at Leo Bernard & Co., Maiden Lane, as a $2-a-week office boy. Six years later, having studied at Cooper Union, he had his first chance to be a salesman—for $5 a week and no commissions. And at 21, he bought out the Bernard firm which, since 1898, has been J. Manheimer. The offices and storerooms and laboratory are now located at 214 East Twenty-first St., with a staff of fourteen persons, plus a filter paper factory at Couze, France, and a refinery at Grasse.

Mr. Manheimer was presented with a scroll by George Schumacher, Chesebrough Mfg. Co., and president on the CIBS, as a special tribute from that organization and from the entire essential oil industry, with best wishes that every one will again be present at his 80th, 90th, and 100th anniversaries.

Armour Tryptar Sales Conferences

The Armour Laboratories have completed a series of sales conferences introducing their newest product, Tryptar, a brand of highly purified crystalline trypsin. Meetings were held in Chicago, Cincinnati, Dallas, San Francisco and New York. The feature of each session was the showing of a new color motion picture, "Tryptar—Selective Physiological Debridement," which explains the origin of Tryptar and its use in various surgical conditions.

Collins Heads Colton's New Plant

Henry Collins has been appointed office manager of Arthur Colton Company's new plant in Paducah, Ky., according to Kenneth B. Hollidge, executive vice-president.

HENRY COLLINS

Bowman in Charge of Overseas Lab.

Dr. Ralph Edgar Bowman has been appointed head of the first overseas research laboratory of Parke, Davis & Co., at Hounslow, England, according to Harry J. Loynd, president. As director of chemical research he will work in coordination with the board program being carried on at the home laboratories in Detroit under the supervision of Dr. Leon A. Sweet, director of research.

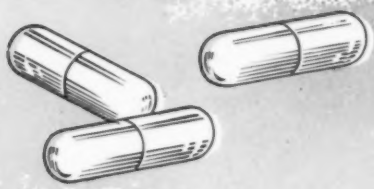
It was also announced that new facilities for the increased production of Chloromycetin had been completed at Hounslow and will serve those countries in the pound sterling areas.

Aiding Dr. Bowman will be Dr. D. S. Morris, senior research chemist; and Dr. E. N. Morgan, Dr. D. D. Evans, Dr. J. F. Cavalla, and Dr. D. E. Ames.

Gamrath Promoted by Monsanto

Dr. Harry R. Gamrath has been appointed assistant director of research for the organic chemicals division, Monsanto Chemical Co., according to Howard K. Nason, divisional research director.

For Your Formulation of CAPSULES



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Baker ALUMINUM HYDROXIDE

Baker Aluminum Hydroxide, U.S.P., Dried Gel, in a new free-flowing form, will be welcome news to you as a drug or pharmaceutical manufacturer.

There are a number of reasons why this Aluminum Hydroxide provides more convenient handling for capsules, tablets and powders. It flows more freely. It is less dusty. It pours rapidly from containers without sticking. It mixes more freely in formulations. Capsules fill with far less difficulty.

You can also make smaller tablets with higher acid-consuming capacity because this Aluminum Hydroxide has greater density and improved antacid characteristics.

Baker Aluminum Hydroxide meets the Neutrality, Sulfate and other requirements of the U.S.P. Monograph.

Write for a test sample . . . then see for yourself how this new and improved product can help you in your formulations.

J. T. Baker Chemical Co., *Executive Offices and Plant,*
Phillipsburg, New Jersey.

Other Baker Chemicals for Antacid Preparations

Bismuth Subgallate
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Magnesium Trisilicate
Magnesium Oxide
Bismuth Subsalicylate
Bismuth Subnitrate
Magnesium Hydroxide
Magnesium Phosphate

Baker CHEMICAL

Baker Chemicals

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Remington Medal Presentation

Dr. Hugo H. Schaefer will be presented with the Remington Medal, Pharmacy's highest award, at a dinner to be held in his honor on Tuesday evening, December 11, in the Waldorf-Astoria Hotel. Dr. James H. Kidder, dean of Fordham University College of Pharmacy, will serve as toastmaster. Speakers for the evening will include Dr. George Beal, associate director, Mellon Institute for Industrial Research; Dr. Ivor Griffith, president, Philadelphia College of Pharmacy & Science;and Edward Neimeth, president of the National Magnesia Co.

Professor Frank J. Pokorny, Columbia University College of Pharmacy, is the dinner chairman, and Irving Rubin, associate editor of *American Druggist*, co-chairman. Tickets for the dinner, $10 per person, may be obtained from Professor Pokorny at 115 West 68th St., New York 23.

Merck Appointments

Dr. A. B. Scott has been appointed to the newly created post of associate director of the chemical control division, Merck & Co., Inc., and C. H. Krusie, has become assistant director of chemical control in charge of quality testing and quality maintenance. Other appointments include that of Dr. H. A. Frediani, former manager of the analytical research department, as assistant director in charge of analytical research; A. J. Thompson, Jr., as successor to Mr. Krusie as manager of quality testing; and J. M. Young, as manager of government liaison.

Scudi Named Scientific Director

Dr. John V. Scudi has been appointed scientific director of the Warner Institute for therapeutic research, according to Elmer H. Bobst, president of Warner-Hudnut, Inc., as a further step in the company's expansion in the field of research. He will be responsible for planning and directing scientific activities of the Institute and will share the overall responsibility for the firm's drug research program with Dr. U. V. Solmssen, administrative director of the Institute.

Schenley Begins Plant Expansion

Schenley Laboratories, Inc., is building an addition to its six-story pharmaceutical plant in order to increase the facilities for production of penicillin and streptomycin, according to A. F. Levy, executive vice-president.

Cited for Wartime Service

Dr. Justus B. Rice, medical research director of Winthrop-Stearns Inc., and E. L. Hoskins, president of Cook-Waite Laboratories, Inc., were presented with Certificates of Appreciation last month for service with the Technical Industrial Intelligence Committee, Joint Chiefs of Staff, during World War II. Prior to V-E Day, Dr. Rice and Mr. Hoskins were selected from the pharmaceutical and dental manufacturing industries to obtain information on Germany's wartime medical and dental advances. They spent three months during the war on separate investigations, interviewing captured scientists and manufacturers in the respective fields.

Dr. Justus B. Rice, V.P. & Med. Research Director, Winthrop-Stearns Inc., receiving a Certificate of Appreciation from Lieut. Gen. Willis D. Crittenberger, Commanding General of First Army, in recent ceremony at Fort Jay, Governor's Island.

PDA Meeting and Dinner

The Parenteral Drug Association, Inc., will hold its first annual meeting and dinner on October 26 and 27 at the New York Academy of Science, 2 East 63rd St., New York. Included in the program are speakers from government regulatory agencies, the United States Pharmacopoeial Convention, research universities, and industry.

Appointed by Sharp & Dohme

Efrain Rodriguez has been appointed sales manager of the Puerto Rican branch of Sharp & Dohme Inter-American Corp., according to W. B. Wimpenney, president. He has been a territorial sales representative for the company since 1945.

La Towsky on Stokes Staff

Harry R. La Towsky, Jr., has been added to the New England staff of the F. J. Stokes Machine Co., and will make his headquarters at 71 Charles St., Boston, under the direction of Harold G. Roman, New England district manager.

Nepera Enlarges Harriman Plant

Nepera Chemical Co., Inc., has added manufacturing facilities to their Harriman, N. Y., plant at a cost of about one million dollars. The company began operations early this spring with the production of 2-methyl, 5-ethyl pyridine for their own use in the manufacture of niacinamide. An official of the company indicated that existing shortages of this vitamin should be eliminated by the end of 1951, with ample supplies available thereafter.

Prof. Domagk Visits Schenley

Professor Gerhard Domagk, winner of a Nobel Prize in 1939 for his pioneer work in the sulfonamides, was honored at a luncheon in Lawrenceburg, Ind., by officials of Schenley Laboratories, Inc., on September 17. He spent a day inspecting the plant and research facilities of Schenley as guest of the company's research department.

New Eastern Headquarters for Searle

The eastern branch of G. D. Searle & Co. moved into new quarters at 120 Park Ave., Lyndhurst, N. J. on September 24. The new building houses Searle's New York branch office and shipping depot, formerly located at 111 Eighth Ave. in the Port of Authority Building, according to A. C. Jolley, eastern branch office manager.

Dr. Fischer with Ciba 15 Years

Dr. Werner H. Fischer, vice-president in charge of production, Ciba Pharmaceutical Products, Inc., recently received a 15-year service pin from T. F. D. Haines, president. He was first associated with Ciba, Limited, in Basle, Switzerland, where he was employed as a research chemist from 1936 to 1940.

Hiller Named N. Y. Dist. Manager

Paul W. Hiller has been appointed New York district manager of chemical sales for the potash division of International Minerals & Chemical Corp. He had formerly been manager of the products development department of Innis, Speiden & Co., a subsidiary of International.

Heyden to Produce Salicylamide

Heyden Chemical Corp. offered salicylamide to the pharmaceutical industry last month in commercial quantities. The product is said to have more than seven times the pain killing potency of aspirin and twice as much as antipyrine.

A technical bulletin on salicylamide may be obtained from Heyden's market development department.

McIntyre Promoted by Ciba

Joseph P. McIntyre has been appointed manufacturing pharmacist in charge of ampul production by Ciba Pharmaceutical Products, Inc., according to Dr. W. H. Fischer, vice-president in charge of production. He succeeds Paul Schulz who was recently promoted to assistant manager of the pharmaceutical manufacturing division.

Nelden Promoted by Parke, Davis

Frank H. Nelden has been appointed manager of the department of medical sales education, Parke, Davis & Co., according to Graydon L. Walker, director of U. S. and Canadian sales.

FRANK H. NELDEN

Frediani Awarded Fellowship

Dr. H. A. Frediani, assistant director of the Chemical control division, Merck & Co., Inc., has been awarded a Fulbright Fellowship by the United States Government. He left September 21 for the University of Padua, Italy, to spend a year lecturing and doing research work in physical chemistry.

Evans Research Adds 9 Chemists

The Evans Research and Development Corp. has added nine chemists to its research staff: Marion C. Froehlich, Kenneth L. McHugh, Irene F. Ruggiere, Hilde R. Weil, Elizabeth H. Neu, Ruth Kahn, Alice Schneider, Patrick V. Bonsignore, and Marilyn A. Grimm.

Continental Can Elects 2 V.P.'s

Lawrence Wilkinson and E. R. Van Meter have been elected vice-presidents of Continental Can Co. by the board of directors, according to Lucius D. Clay, board chairman. Mr. Wilkinson had been director of the New York Civil Defense Commission, and Mr. Van Meter, general manager of the company's paper container division.

Appointed by C. S. C. Pharms.

Robert G. Whitesell has been appointed southeastern regional manager of C. S. C. Pharmaceuticals, a division of Commercial Solvents Corp., according to H. J. Henry, vice-president of product division. He will make his headquarters in Atlanta.

Dicks Promoted by Parke, Davis

Merrill W. Dicks, former field manager in the Los Angeles branch of Parke, Davis & Co., has been promoted to assistant manager of the drug firm's hospital and biological sales department in the home offices at Detroit. He will be responsible to F. H. Thistlethwaite, department manager.

Fairhurst Named Sales Manager

William S. Fairhurst has been appointed sales manager of Fleuroma, Inc. which last month moved its plant and offices to new quarters at 38 West 21st St. He started work in the essential oil field in 1932 with Louis J. Zollinger, joining Tombarel Products Corp. in 1937, later becoming vice-president of that firm.

He left that concern earlier this year and for a short time was with another cosmetics company before joining Fleuroma.

Vacuum Impregnation Brochure

The F. J. Stokes Machine Co. has published a comprehensive book on the subject of vacuum impregnation, explaining the process, giving a detailed list of applications, and describing the equipment used.

Rames Promoted by Parke, Davis

H. B. Rames has been promoted to manager of the chain store sales division of Parke, Davis & Co., according to Graydon L. Walker, director of U. S. and Canadian sales. Formerly field manager for the company's Denver branch, he will be responsible to Carl Johnson, U. S. sales manager.

Named Lakeside Comptroller

Gerald Goelzer has been appointed comptroller of Lakeside Laboratories, Inc., according to Evan Helfaer, president.

APMA Moves Offices

The American Pharmaceutical Manufacturers' Association has moved its offices from 500 Fifth Ave. to the seventeenth floor of the RCA Building at 30 Rockefeller Plaza.

Bio-Ramo Appoints Price

Dr. Clifford W. Price has been appointed director of research and development for the Bio-Ramo Drug Co., Inc., according to Francis Ramo, Cusumano, president.

Watson Becomes Verley Sales Rep.

Rupert C. Watson has been appointed sales representative by Albert Verley & Co. for the New York Metropolitan district, and for Philadelphia, Boston and New England. He has had a record of 20 years' experience in the aromatics materials field, specializing particularly in the sale of perfume compounds and bases to the leading toilet goods manufacturers.

RUPERT C. WATSON

Dr. Holland Appointed to NPA

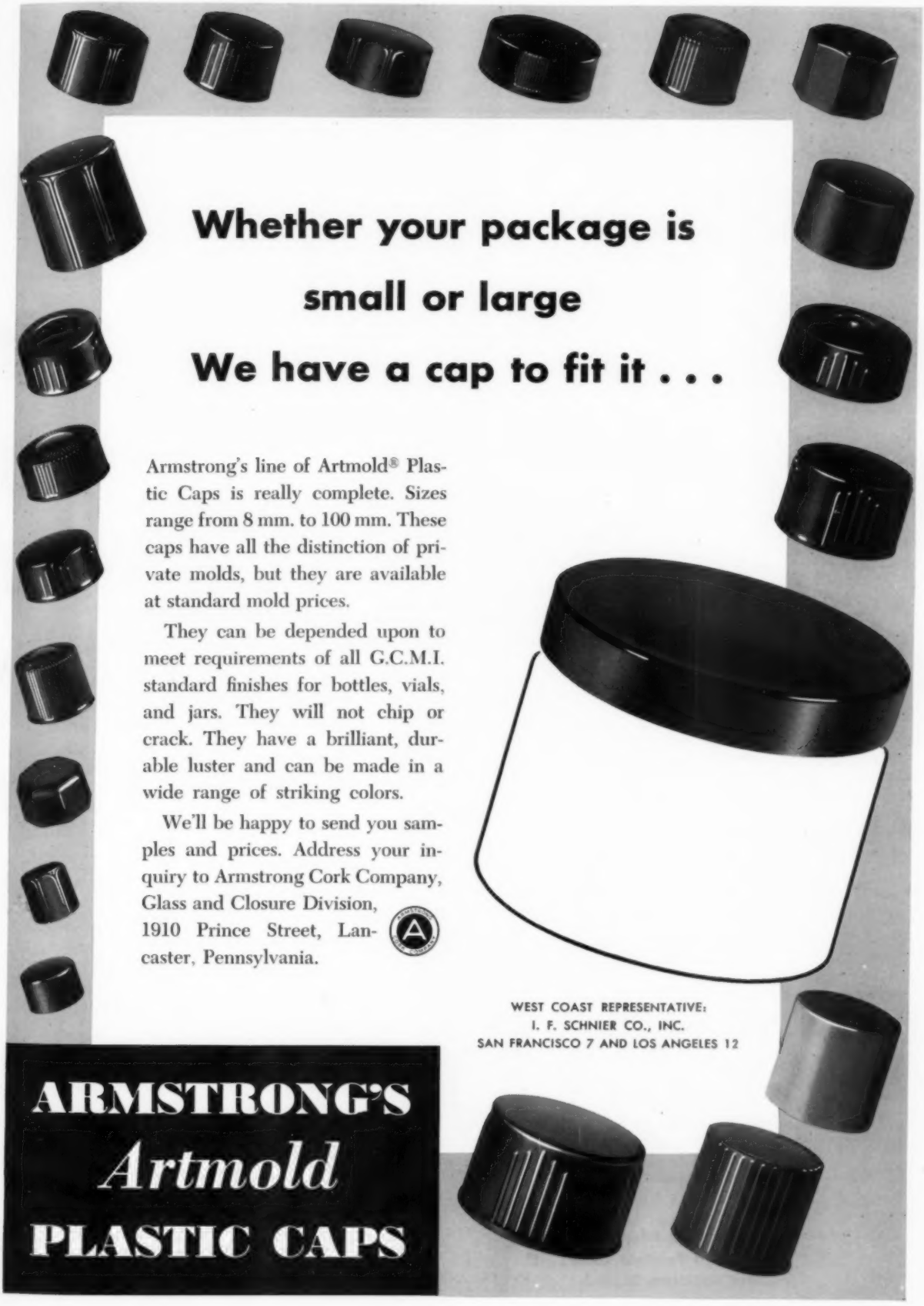
Dr. Christian V. Holland, co-ordinator of manufacturing facilities of Sterling Drug Inc., has been appointed deputy chief of the drugs, alcohol, and solvents branch of the National Production Authority and chief of its drug and cosmetics section. During his work in Washington, he will be on leave of absence from Sterling Drug.

Haberstick Heads Chicago Office

Carl F. Haberstick succeeded G. M. VanKirk as head of the Chicago sales office of Hazel-Atlas Glass Co. last month following Mr. VanKirk's retirement August 31, after 45 years of service. Mr. Haberstick has been with the company for 34 years.

CSC Declares Dividend

Commercial Solvents Corp. declared a dividend of 25 cents per share on August 28 on the outstanding common stock of the company. It was payable September 28 to stockholders of record at the close of business on September 6. The previous payment was 25 cents per share on June 29 of this year.



Whether your package is small or large We have a cap to fit it . . .

Armstrong's line of Artmold® Plastic Caps is really complete. Sizes range from 8 mm. to 100 mm. These caps have all the distinction of private molds, but they are available at standard mold prices.

They can be depended upon to meet requirements of all G.C.M.I. standard finishes for bottles, vials, and jars. They will not chip or crack. They have a brilliant, durable luster and can be made in a wide range of striking colors.

We'll be happy to send you samples and prices. Address your inquiry to Armstrong Cork Company, Glass and Closure Division, 1910 Prince Street, Lancaster, Pennsylvania.

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Sipon is the ideal detergent agent in liquid, cream or jelly shampoos. Sipon cleans the hair perfectly, even in lukewarm water either hard or soft. When compounded to our formulae, Sipon leaves the hair soft, glossy, easy to manage, with no residue of curds or dulling filmy particles.

Write for samples and descriptive literature.

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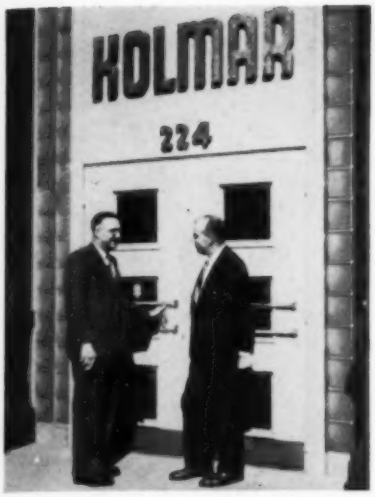


Leslie L. Hall, Kolmar of Australia, and John Rix, president, Kolmar International, standing in front of the Milwaukee Plant.

Halls Visit Kolmar Plants in U. S.

Mr. Leslie Lionel Hall of Kolmar Australia, and his wife, have been visiting the United States. At the same time, Mr. Hall has studied the latest products, improved formulae, and manufacturing techniques and controls in both Milwaukee and Port Jervis, N. Y., Kolmar plants. They spent a number of days in New York and later flew to Oakville, Ontario to visit that plant. While in this country, Mr. Hall plans to call on as many cosmetic concerns as possible.

Directs Walker Advertising

Thomas P. Lewis, in charge of export sales, Walker Laboratories, Inc., has been put in charge of domestic and foreign advertising and promotion, according to Myron Walker, president.

Bruce With Angelique & Co.

Robert Bruce has been appointed by Angelique & Co., Inc. to handle their perfume lines in Northern California. He had previously been cosmetic buyer at Macy's, San Francisco.

Riboflavin Booklet

A new booklet which describes the use of riboflavin as an ingredient in livestock, poultry, and other animal feeds has just been issued by the Agricultural Division of Commercial Solvents Corporation, 17 East 42nd Street, New York 17, N. Y. Included in the booklet is a summary of the latest available information on the role of riboflavin in nutrition, as well as sections describing sources of riboflavin, deficiency symptoms, and recommended nutrient allowances.

Baker Releases New Chem. Catalogue

The J. T. Baker Chemical Co. has just published a comprehensive 256-page catalog which lists the company's complete line of laboratory chemicals. Free copies may be obtained by writing the company, Department 30, Phillipsburg, N. J.

Harmon with Hardesty

William S. Harmon has joined the staff of Hardesty & Co. as technical director, with headquarters in the Philadelphia plant, 3512, Cedar St. He had formerly been in the engineering and research departments of Merck & Co., Inc.

John J. Goett

John J. Goett, member of the headquarters staff of the production department, Chas. Pfizer & Co., Inc., died September 11 at his home in Riverdale, N. Y. He was 32 years old. He had formerly been development engineer for two years in the Argonne Laboratories of the University of Chicago, and in 1945 joined the process development group at Pfizer. At the time of his death Mr. Goett had been working primarily in the field of vitamins and antibiotics.

Dr. Ray A. Patelski

Dr. Ray A. Patelski, chemist in charge of antibiotics research for Charles Pfizer & Co., died in Brooklyn Hospital September 7 at the age of 46. He had been with Pfizer since 1938 when he was assistant production superintendent. Later he took over the work of investigating new antibiotics when they became one of the company's principal products.

He is survived by his wife, Mrs. Gae Patelski; two daughters, Cheryl and Carlyn; his father, two brothers, and a sister.

Isidore H. Bander

Isidore H. Bander, 66, vice-president of McKesson & Robbins, Inc., in charge of coordination of drug sales and buying activities, died suddenly in New York on September 9. Born in Russia in 1885, he came to the United States at an early age, and entered the drug business as a clerk in a Providence, R. I., drug store which was later purchased by L. K. Liggett Co. He was later transferred to Liggett's Boston headquarters, and subsequently worked up in the organization to the vice-presidency in 1924.

ISIDORE H. BANDER

In 1929 he became vice-president and general sales manager of McKesson & Robbins, and took over the assignment of vice-president in charge of coordination of drug sales and buying activities in 1947. He is survived by his wife, Mrs. Harriet B. Bander; three daughters, two brothers, a sister, and six grandchildren.

Arthur H. Spark

Arthur H. Spark, 37, senior microbiologist for Schenley Laboratories, Inc., and his wife, Hannah, were killed when their automobile overturned on the Pennsylvania Turnpike near Harrisburg on September 1. Their two children, Arlene, 9, and Barbara, 4, also in the car, were seriously injured.

Mr. Spark had been senior microbiologist at Schenley since 1947.

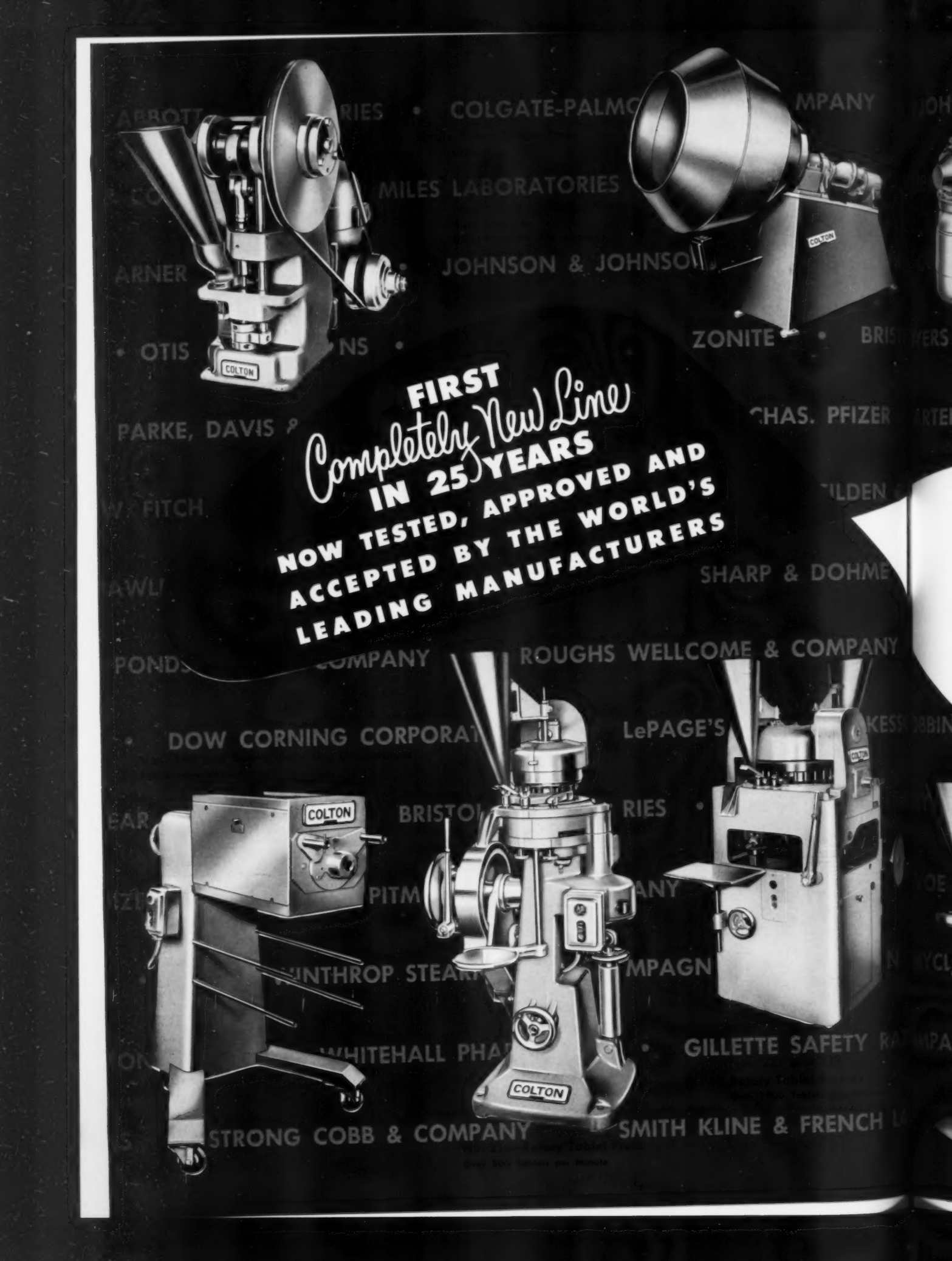
Dr. Curt P. Wimmer

Dr. Curt P. Wimmer, former professor and associate dean of the College of Pharmacy of Columbia University, died in Queens, N. Y., September 9 at 72 years of age. He retired in 1946 after 40 years on the faculty of the college and 18 years as associate dean.

Dr. Wimmer edited the *New York Journal of Pharmacy* from 1929 to 1934, and was editor of the *New York State Pharmacist* from 1943 until his death.

Joseph Wrench

Joseph Wrench, 74, who had been associated with the Chemical division of West Virginia Pulp and Paper Co. for 34 years prior to his retirement in 1946, died September 15 at Roslyn, Long Island. He was associated with the Electrolytic Alkali Co., Middlewich, England, from 1902 until 1912, when he came to the United States to join the chemical division of the paper company, then operated under the name of Industrial Chemical Co.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IN 25 YEARS
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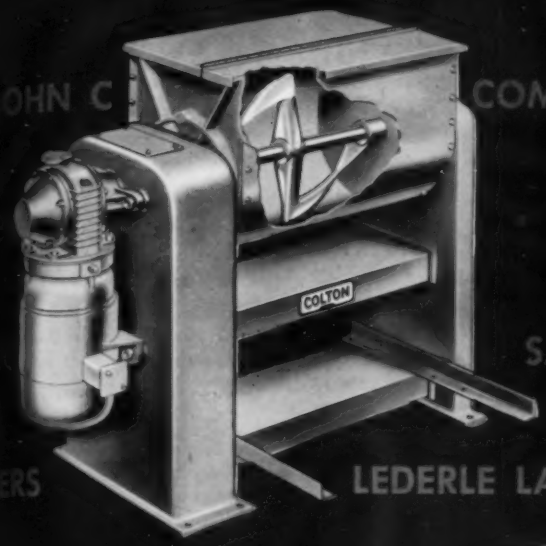

Newly engineered equipment introduced by Colton has probably had more intensive testing under every condition of use than any similar equipment in chemical processing history.

It has been uniformly accepted throughout the industry because its fine engineering assures smooth, vibrationless operation; its advanced design gives meticulous precision in the product; its high production offsets increased labor costs and permits amortization of investment within a few months. Our illustrated catalog is yours for the asking.

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Management Forum

by Francis Chilson
INDUSTRIAL CONSULTANT

Memo To Top Management
Subject: *Nepotism*

Nepotism, or the practice by persons in positions of power and authority of hiring friends and relatives, has a destructive effect on morale and efficiency far in excess of any other single influence in business operations.

Yet the practice is almost universal not only in corporations wholly owned by the persons who run them but also in corporations in which top management has only a small financial interest or none at all.

Before we can assay the iniquity of this universal practice, we must first recall what a corporation is. A corporation is a legal organization having certain privileges and certain obligations. This applies as well to a wholly owned private corporation as it does to a public corporation. Let us not forget that among the privileges extended to all corporations *by the public* is limitation of responsibility for debt. In other words if a corporation blows up through inefficiency, mismanagement or otherwise the owners or stockholders are responsible for the debts of the corporation, however extensive they may be, only to the extent of their individual investments in the corporation. This is a very great privilege indeed. Without it modern business as we know it could not have developed to its present extent. But this immunity from debt under certain conditions, being legal, means that the public at large has an implied interest in every corporation whether public or private. Therefore, every corporation has an equal responsibility to the public for its privileges and rights, and, for its very existence regardless of whether it is wholly owned by a few individuals or is owned by many stockholders.

In this sense every corporation public or private is a trusteeship and the men responsible for its management are trustees. To the public indeed a dual responsibility is owed: as customers who buy products and as citizens whose consent to the laws made the corporation's existence possible. To stockholders a responsibility is owed because they took the risk and provided the money which made the corporation possible. To employees of all ranks a responsibility is due because no man, however brilliant he may be, succeeds by himself alone. He must have the musclepower, the brainpower, the willpower and the loyalty of a more or less large group of people before any project can be established on a sound foundation.

Against this background the practice of nepotism is in many cases unfair if not immoral and in most cases it should be illegal.

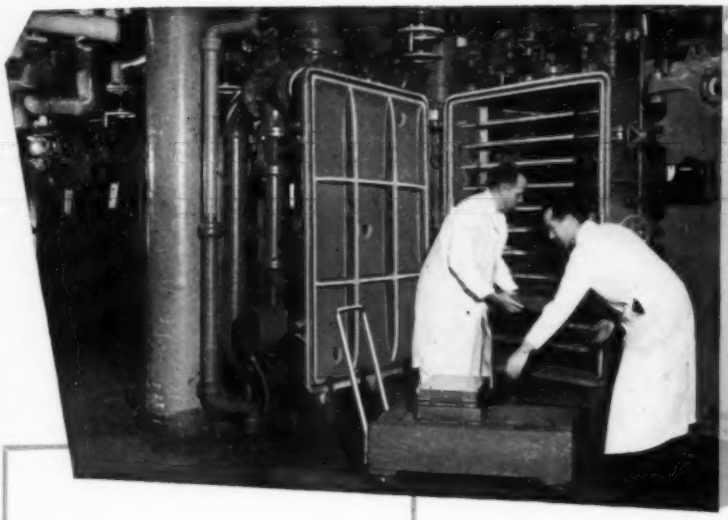
A few years ago a hullabaloo was raised when it was found that one of our congressmen had a number of relatives on his payroll as secretaries. His head was called for forthwith and among the loudest to call were some clients of mine, respectable members of the NAM who, in their own organizations were guilty of the same practice.

In some cases apparently a crime is an identical act committed by the other fellow.

Everyone recognizes the danger of nepotism in somebody else's organization. No company president, even though he tolerates the practice of nepotism in his own organization, would for a moment think of investing his personal funds in another organization which he knew to be loaded with the relatives and friends of the management. He'd be a fool if he did because the history of industry in this country is spotted with the failures of companies which fell into the hands of incompetent sons, cousins, in-laws, fraternity brothers, classmates and other stooges after the founder and spark plug of the business had passed on.

It is a perfectly understandable human trait for a man who is at the head of a successful business to wish to bring his son or sons into it. There are indeed many instances in which the sons have proven to be far more able men than their parents. But the exceptions prove the rule, because genius and exceptional business ability have never been proven to be inheritable traits.

When the son of the founder or principal owner of a business is brought into it, the people comprising the



Stokes Freeze-Drying equipment in operation at E. R. Squibb & Sons' New Brunswick, N. J., plant. Such equipment is widely used for the drying of blood plasma, streptomycin, ACTH, and other vitally needed chemical and pharmaceutical products.

The priceless ingredient **of every product is the honor and integrity of its maker**

This famous quotation has identified Squibb products and principles for more than a quarter of a century.

From the earliest days of large-scale pharmaceutical manufacturing Squibb set standards for a growing industry.

Earning first the respect of the medical profession, Squibb laid the foundation for public acceptance and repute now worldwide.

The purest chemicals, the most carefully prepared formulas, the most rigidly supervised processes, the most patient research, the most alert cooperation with public and professional need, have made Squibb not only a name but a symbol in the annals of chemical and pharmaceutical manufacturing.

It is hardly a coincidence that Stokes equipment is widely used in Squibb plants throughout the world.

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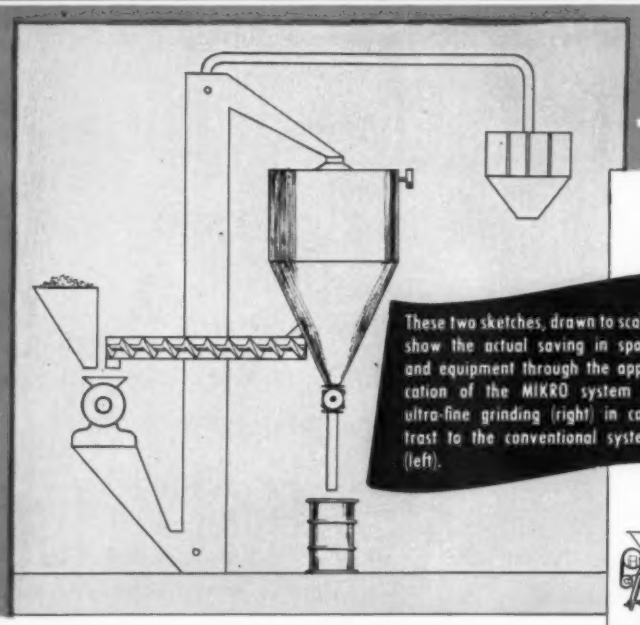
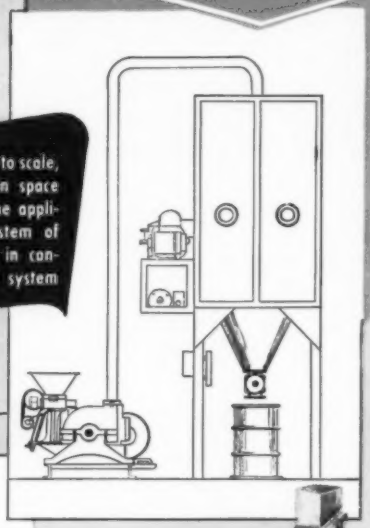
By this Process of ELIMINATION and REDUCTION



These two sketches, drawn to scale, show the actual saving in space and equipment through the application of the MIKRO system of ultra-fine grinding (right) in contrast to the conventional system (left).



The MIKRO-ATOMIZER • • •

ELIMINATES: **Air Separator— Bucket Elevator — Screw Conveyor**

REDUCES: **Headroom — Floor Space — Extra Handling or Equipment**

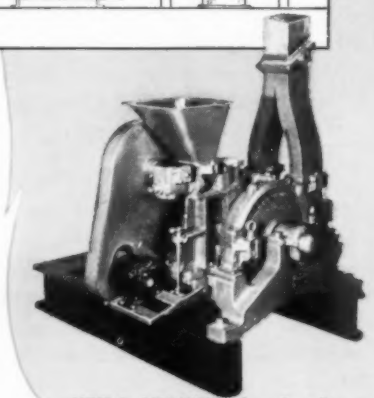
If your need is for ultra-fine grinds requiring air classification rather than screening, the MIKRO-ATOMIZER is your complete answer. It is an entire system producing perfectly blended grinds in the lower micron range in a single pass at exceptionally low temperature rises . . . . . A 3-function machine eliminating much of the accessory equipment used in conventional systems.

With its built-in air separator, the MIKRO-ATOMIZER simplifies the flow chart by grinding, air-classifying and conveying in one operation. And its 3-function service is reflected in 3-fold saving:—lower initial and maintenance costs . . . lower cost of production per hp/hr as compared with conventional systems . . . substantial economy in operating space, or in construction costs if you are planning a new building.

Slight adjustments in the MIKRO-ATOMIZER permit varying degrees of fineness. If necessary you can actually produce two degrees of fineness in one operation.

If you have ultra-fine grinding problems don't fail to investigate this 3-function MIKRO.

SEND FOR **special MIKRO-ATOMIZER bulletin**



MIKRO-ATOMIZER for ultra-fine grinds

Other members of the MIKRO "family:"

The MIKRO-PULVERIZER
—for granular or fine grinds.

The MIKRO-COLLECTOR
—for general air clarification and saving material thru adequate dust control.

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MIKRO-PULVERIZER (FINE) **-ATOMIZER** (ULTRA FINE)
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PRESERVE OUR HERITAGE: FAITH, FREEDOM AND INCENTIVE

organization bow to the inevitable because they instinctively recognize that a man who owns property has a right to protect it when he no longer is capable of doing so himself, and if such a man feels the introduction of his son into the organization is the best way to do that no one will demur, and if the son proves to be an able man, he will in time get as much or more cooperation and loyalty than his father did. The story is quite different when the president or general manager, having little or no financial interest in the organization, imposes his son upon the organization. The father is then regarded, quite properly, as using his power, contrary to the interests of other people in the organization, to secure the fortunes of his offspring. Resentment is intense, all the more so because it cannot be expressed openly. Morale suffers; people become indifferent in their work because their own hopes are nipped in the bud and a "seed of death" has been planted in the organization which one day may kill it.

The situation is even more serious when the head of a company is fool enough to permit his in-laws (particularly sons-in-law) to enter the business. Once the in-laws are in then come the cousins, the fraternity brothers; the sons of socially prominent people on whom the big boss is trying to create an impression and then *Mene! Mene! Tekel! Upharsin!* has been written upon the wall.

Yet nepotism is understandable. The farther a man advances in business the lonelier he becomes. The bigger he is the more he depends upon and appreciates loyalty in his associates. He thinks (God help him!) that he can get even more unswerving loyalty from his friends and relatives. So he gives them jobs. Poor fool! Also he satisfies his ego. He likes to parade among his relatives as a man of position and power—a man who can hand out jobs regardless of economic conditions at the moment. A big shot!

'Why is it," the president of a well-known corporation asked me recently, "that a man can't bring into his own organization his own relatives without causing a row over them, especially when they are able men?"

I answered, "How do you know they are able?"

"There's the rub! Whenever a relative is introduced into a business, his initial superiors lack the guts, when the relative proves to be worthless, to tell the big boss so. They are wise. They have a job to protect. From age old wisdom they know that "Blood is thicker than water." The president may ask the divisional supervisor how the relative is doing. He may even make a point of insisting that he doesn't want any relative around who isn't doing a good job and obeying company rules "the same as everybody else". But the wise man will watch his step. Blood is still thicker than water.

If you are interested in advancing in your own company don't tell the big boss that his son is a moron even though he actually may be. It's much more practical to marry the boss' daughter!

The entrance of a relative into an organization is never looked upon with enthusiasm. Everyone knows the routine: the relative is run through the organization to give him a quick education and then in a year or two he becomes a vice president or obtains some other equally important job, thus shutting off an opportunity for which, in many cases, infinitely better men had been striving for many years. Another bad feature of the practice is that everyone in the organization knows that the relative or friend has a direct line of communication to the top. By some he is regarded as a spy and stool pigeon; by others, more cunning, he is used as a dupe to advance their own interests with the big boss. In either event bitterness, rotten politics and inefficiency ensue. Morale breaks down and the company foots the bill.

I speak as a qualified witness of the iniquity of nepotism in business. My own father was brought to bankruptcy by a schoolmate whom he had brought into his business and to whom eventually he entrusted the care of his finances. I have seen powerful corporations pass out of existence or decline into relative unimportance because of the incompetence and indifference of relatives and friends who had been given positions of power. In my consulting practice I have witnessed the evil effects of nepotism in many organizations. I have seen exceptional men quit their jobs because they knew they could get nowhere with the "family" or inner circle. I have seen relatives and friends of the big boss flout orders of their immediate superiors because they knew they could get away with it. I have known cases where friends and relatives actually stole from the corporations employing them by outrageously padding expense accounts because, again, they knew they could get away with it.

In a larger sense unbridled nepotism constitutes a serious threat to the free enterprise system. How can we honestly preach to young men that the road to the top is wide open when so many of them know from bitter experience that it is not so? Why do so many young men feel that it is impossible to get anywhere or even to get a decent job unless they have "pull"? Why are so many young men striving for secure public service jobs with a pension at the end of a short road? The Communists are continually telling our young men —ably aided and abetted by many of the trades unions— that they cannot get anywhere unless they have money or stand in with the big bosses. If our system of free enterprise means anything it should mean not only freedom to enter or start a business; it should also mean freedom to advance in an enterprise as rapidly as opportunities and a man's talents will allow, free from the fear of being stymied by other men, whose principal qualifications are they are relatives or friends of top executives and directors.

Some corporations—too few—have rules against the employment of relatives anywhere in their organizations. They are very wise.

Mysteria Medica

In order to give you an idea of what socialized medicine is like in Great Britain—and what it will be like here if socialized medicine ever comes, but more so because

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Incorporating many desirable user- and package-benefits, the "Banks" Labeler features:

High Production—from 40 to 170 containers per minute. For some types of containers up to 240 per minute.

Continuous Motion—

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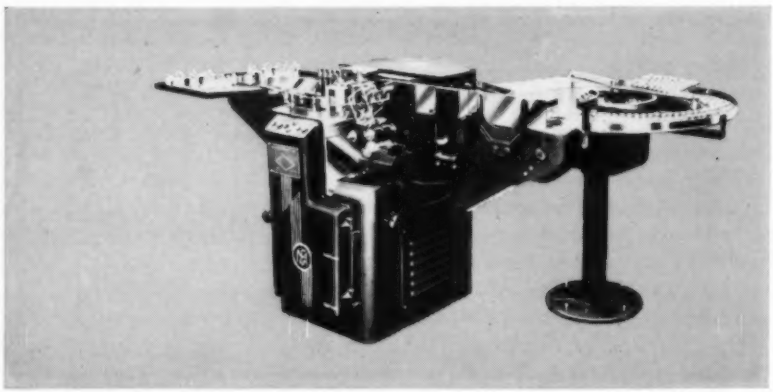
No Overlapping of Glue—Glue is applied to label only, eliminating traces of surplus adhesive beyond edges of the label.

Use of Various Labels—The "Banks" Labeler can be arranged to label an all around or part label, single spot labeling and front and back duplex labeling.

Six different models of the "Banks" Labeler are available to label vials, jars, bottles, etc. . . . For complete details write Stokes & Smith Co.



4912 SUMMERDALE AVENUE, PHILADELPHIA 24, U.S.A.

we can write gobbledegook better than the British—I'd like to quote Britain's National Health Act as excerpted in the St. Louis Globe Democrat:

"The expression 'infectious disease' means primarily any disease included in Regulations under Subsection I of Section 29, whether absolutely or by definition of a particular stage of such disease, but in any Section of Part IV of this act from the application from which a disease or stage of a disease is excluded under Subsection 2 of said Section 29, the expression does not include such disease in such stage, as the case may be."

There, consider yourself diagnosed! If the British can take that they are undoubtedly a tough people.

How To Avoid Excess Profits Taxes

Many of the firms in the drug and cosmetic industry fortunately will be required to pay excess profits taxes. But they will utilize every resource to avoid paying such taxes by spending lavishly and not always wisely on projects, which in normal times would be passed up or scrutinized long and carefully.

It is to be hoped the wild waste of money in unsound research projects and futile advertising that characterized the excess profits period of World War II will not be repeated. That period of unbridled spending created some bad fiscal practices that seriously injured some companies in the uncertain years of '47 and '48.

The money that normally would have to be paid for excess profits taxes can be spent wisely and constructively to strengthen your business, thus avoiding the tax and deriving permanent benefits from the expenditures. In this sense excess profits actually offers an inducement to accomplish *inexpensively* desirable improvements in every branch of business.

Every dollar a corporation earns over the current 47 per cent bracket up to the excess profits base is a 53 cent dollar. In other words the corporation can keep 53 cents of each earned dollar for reserves, dividends, etc.

Every dollar a corporation earns over the marginal excess profit rate of 77 per cent is a 23 cent dollar.

Therefore, every dollar spent in deductible categories will cost the spending corporation, which is not in the excess profits bracket, 53 cents. The more fortunate corporation that is in the excess profits bracket can make expenditures for exactly the same purposes at an actual out-of-pocket cost of only 23 cents per dollar. One can easily imagine the competitive effect this condition will have, if the corporations in the excess profit bracket spend the dollars they would otherwise have to pay in excess profits taxes, in intensified market exploitation.

In planning to spend money that otherwise would have to be paid out in excess profits taxes two things are necessary: good accounting figures so that the amount of excess profits can be anticipated during the year in which they are earned, and, secondly, a carefully thought out plan for spending the money on constructive, expensive projects that will confer a permanent benefit on the company. Expenditures of course must be made currently in the excess profits years.

Under suitable headings some of the possible projects are listed here:—

Plant Expenditures

Engineering research. The drug and cosmetic industry has been very backward in spending money to improve and develop new equipment, processes and methods. Several companies might undertake joint engineering research projects because the necessary brains are not likely to be found in any one place.

Rearrangement of plant and equipment to improve material flow and operating efficiency.

Junking and writing off residual values of equipment that can be replaced with better equipment.

Investigation of new plant sites for companies contemplating new construction projects in the future; preparation of layout drawings.

Improving package specifications and packaging material controls.

Improving personnel services and recreational facilities.

Repair work of all kinds, painting etc.

Improvement of safety facilities, fire prevention methods and equipment.

Employ qualified consultants to assist with all such projects. (That's a plug.)

Office Expenditures

Improvement of office records and procedures; simplification of forms etc.

Repair and replacement of all office equipment and other facilities.

Marketing

Open new branches and distribution warehouses.

Provide better facilities for both preliminary and infield training.

Develop gadgets and other sales-aids that will make it easier for the men to demonstrate or get their ideas across.

Employ more men; higher type men. (If you can get them.)

Increase advertising expenditures but only in media that will help to create sales. (The big, one-page newspaper institutional ads of comparatively unknown firms one used to see during World War II days only wasted newsprint.)

Improve displays, package designs, circulars and other material.

Junk all old display material, samples and sample kits and other obsolete material that may not have already been written off.

Research

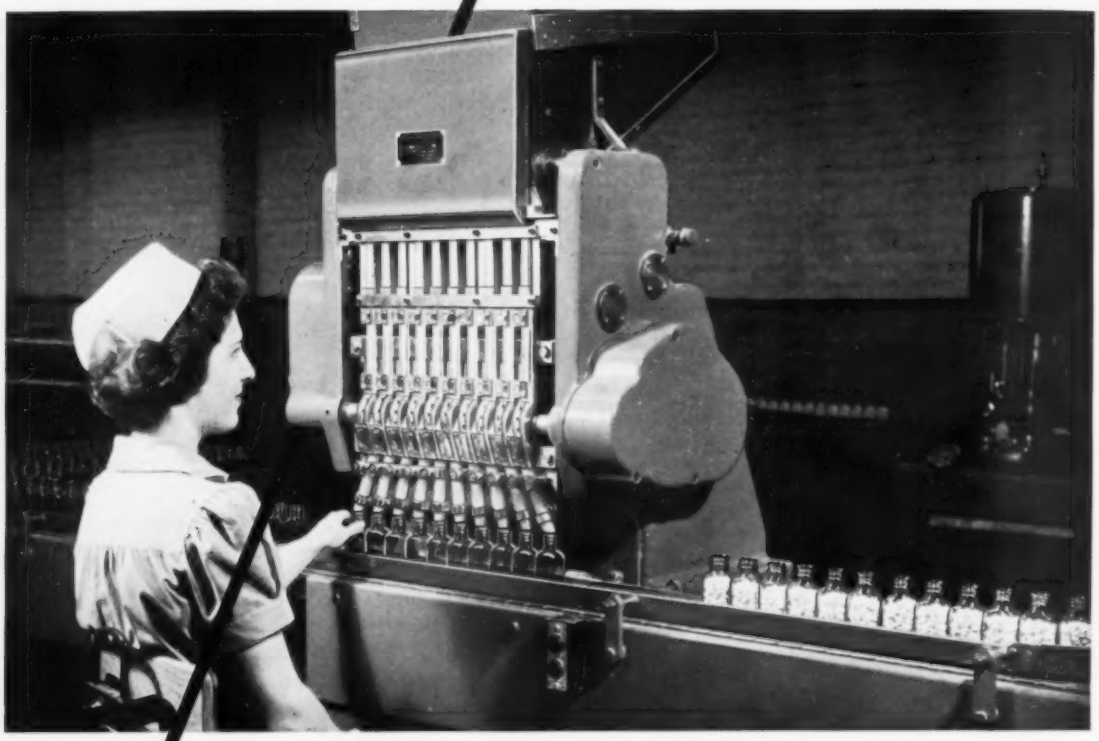
Employ qualified consultants to review laboratory procedures and to assist with or establish new research projects.

Improve existing products where possible.

Establish research fellowships in universities.

Broaden clinical contacts and clinical work.

The Choice is US



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Recently developed by Enley Products, Inc., the DEMON Demineralizer offers chemically pure water for only a few pennies per gallon. This inexpensive unit has been developed for small quantity users, where the usual large and more elaborate equipment has proven both impractical and too expensive. By merely attaching the Enley DEMON to the regular water tap, the user can produce up to 120 gallons of chemically pure water per cartridge, equivalent to triple distilled water.

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Even if the concentration of dissolved salts in a water supply is high, the Enley DEMON can reduce this concentration to less than .01 part per million, a feat ordinarily accomplished only by expensive, repeated distillations. "Amberlite" resins newly developed by the Rohm & Haas Company, are utilized in this new monobed deionization process, to produce chemically pure water. (Note: Amberlite is a trade mark Reg. U.S. Pat. Office and in principle foreign countries of the Rohm & Haas Co.)

The Enley DEMON eliminates all such previous uses of electronical connections, meters and valves. Because of this valuable space-saving factor, the DEMON has proven indispensable for the electroplating of precious metals and bright and fast solutions.

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Amsco Polyethylene Sealing Machine

A complete set-up for conveying and sealing large, heavy packages in polyethylene is the Amsco Model D high speed automatic rotary sealing machine with air extractor and roller bed conveyor. Many government orders call for this type of packaging. The system maintains a steady flow of securely sealed bags with little or no handling.

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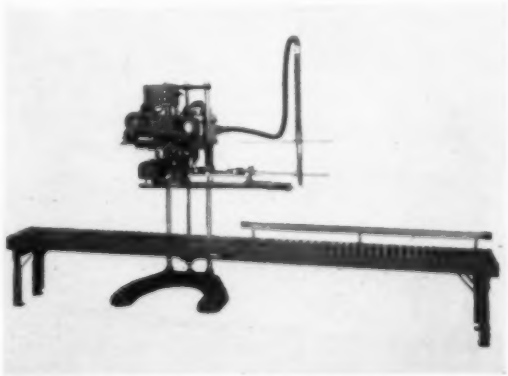
Rapid height adjustment of the sealing mechanism makes the machine ideal for handling different height packages successively. Dimensions of the sealing machine are 62" high, 33" wide and 54" long.

The roller bed conveyor, equipped with adjustable legs, is supplied in 6" or 9" widths and any length required. The patented Amsco air extractor removes all air from the bag and assures a neat, compact package. Full particulars are available by writing Amsco Packaging Machinery, Inc., 31-31 48th Avenue, Long Island City 1, N. Y.



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Patent Thoughts and Trends

*by Thomas Cifelli, Jr.**
PATENT ATTORNEY

Present Status of Patent Law Revision

It will be recalled that some time ago (see March 1950 issue of This Journal) efforts were begun to collect the miscellaneous patent acts and enact a comprehensive act as was done with trade-marks in 1946.

A brief statement regarding the present status of such efforts appears to be in order. While no effort will here be made to consider the various changes made by each of the bills that have been considered thus far, it appears reasonably safe to say that no really sweeping changes in the U. S. patent laws will be present in the Revision. Thus, for example, it does not appear that there will be any provision for compulsory licenses, short term or minor patents, patents of addition and renewal fees. The foregoing is not intended to be taken as indicating that the Revision will not include many important changes. The changes which still are present in the pending bill on the subject are, however, changes which follow the American concept of the place of patents and not changes which would engraft European concepts of patents onto the American patent system.

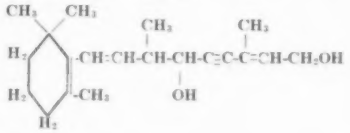
Among the recent patents are those involving the synthesis of vitamin A, the provision of improved penicillin and modified polychlorophenes. The most recent patent on hair waving composition is included in order to bring the review which appeared in last month's issue up to date.

Synthesis of Vitamin A

Prof. Milas's imposing portfolio of patents covering the synthesis of vitamin A just received another addition, in the form of U. S. patent 2,567,572. As in the case of all of the other Milas patents the most recent patent was assigned to Research Corporation of New York.

U. S. 2,567,572 might be said to involve a detour along the vitamin A road marked out by Milas in his previous patents, in particular the ones in the series 2,369,156-2,369,168. Along the new route Milas prepared novel products on which he obtained patent protection. These novel products have the following formulae:

1.



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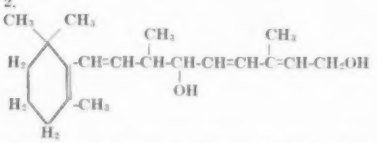
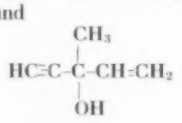


The new Milas synthesis begins with the compound

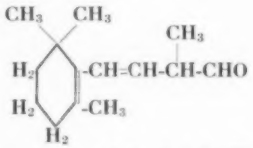


(I)

which may be obtained as described in Milas's other patents and is first rearranged by treating it in an aqueous solution of a mineral acid such as sulfuric acid to form the enyne carbinol compound as follows:

Compound I $\xrightarrow[H_2SO_4]{5\%}$ $HC{\equiv}C\text{-}C(CH_3){=}CH\text{-}CH_2OH$.

The Grignard of this latter compound is then reacted with the aldehyde compound:



The above triple bond dihydroxy compound is obtained and then selectively hydrogenated to the corresponding double bond compound.

Improved Penicillin

Contrary to the impression that the popular magazines and Sunday supplements give, man's battle against disease is not solved upon the discovery of a so-called wonder drug. It will be found that practically always problems are encountered in the manufacture and administration of the drug. Indeed, one can never tell what form these problems may take, as witness the unfortunate occurrence a number of years ago involving sulfanilamide, one result of which was the putting of additional teeth in the Federal Food, Drug and Cosmetic Act of 1938.

For the most part, it can be predicted with practically 100 per cent accuracy, that after a new drug has been used for some time a number of improvements will have to be made in its manufacture and/or compounding, in order to obtain the maximum usefulness at the lowest economic cost.

In the case of penicillin, two recent patents illustrate the point. These are U. S. 2,564,505, issued to Dr. Simon L. Ruskin, a N. Y. physician, and U. S. 2,564,565, assigned to Merck & Co.

Both Ruskin and the Merck inventor had tackled the problem of improving the therapeutic activity and stability of penicillin. One of the disadvantages of penicillin is that it is hygroscopic and loses part of its bactericidal power upon exposed to the atmosphere.

Ruskins's solution was to convert penicillin into its boron derivative. An interesting aspect of the boron derivative of penicillin is that whereas the rate of excretion of penicillin is about 50 per cent in the first half hour after injection and it is completely eliminated in about four hours, the boron penicillin has a rate of excretion of only about 10 per cent in the first hour and the drug is still present in the blood after eight hours.

In the Merck patent, based on the invention of J. B. Conn, the problem of hygroscopicity is solved by reacting penicillin acid with an aluminum alcoholate in an organic solvent medium to form the corresponding alkoxylated aluminum penicillin.

Modified Polychlorophenes

In recent years the polychlorophenes, in particular the 2,2′-methylenebis (chlo-

*Gaylor, Cifelli & Jurick, Newark, N. J.

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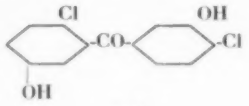
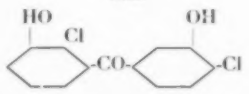
rophenols) have attained some commercial interest in this country. Faith, an Allied Laboratories inventor, feels that the limited solubility of 2,2′-methylenebis (4-chlorophenol), in aqueous media is not completely satisfactory for those bactericidal and fungicidal applications in which aqueous solutions are preferred.

Faith's solution is to convert the phenol into its dioxyacetic acid derivative, which is said to have increased water solubility as well as retain much of the bactericidal and fungicidal properties of the parent phenol.

Faith, in conjunction with H. J. Florestano, recently received another patent, U. S. 2,565,300, also assigned to Allied Laboratories. U. S. 2,565,300 deals with unsymmetrical dichloro-dihydroxybenzophenones represented by the following formulae:

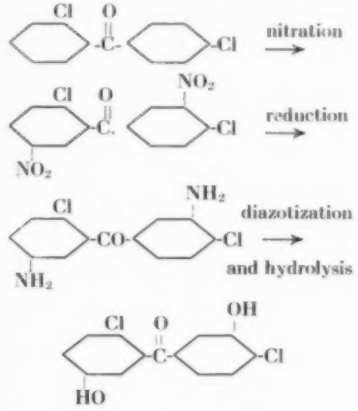


and

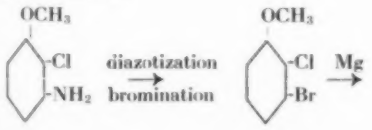


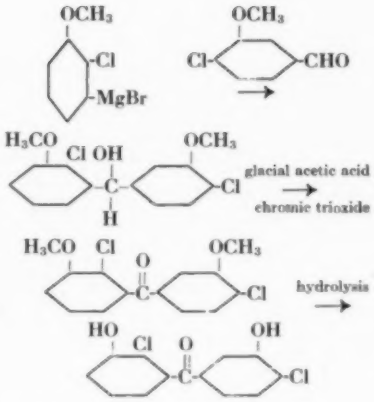
The patent states that the compounds have been found valuable in the preparation of more complex organic compounds and as constituents of veterinary medicines and as fungicidal and bactericidal agents.

The series of reactions illustrating the preparation of the first-given compound follow:



The series of reactions illustrating the preparation of the second-given compound follow:





Hair Waving

Reed, Tenenbaum and Beste, received U. S. 2,564,722, assigned to Raymond Laboratories of Minnesota, on their idea of using the soluble ammonium, alkali, and alkaline earth iodates and bromates in hair waving processes following treatment with reducing agents such as ammonium thioglycollate.

The theory behind the invention as well as its claimed advantages are given in the words of the patent:

The action of the reducing solution produces a probable conversion of the disulphide linkages of the hair into sulphydryl groups, the ammonium thioglycollate serving as a reducing agent, in accordance with the following equation:

$$\underset{\text{Keratin}}{R\text{-}CH_2\text{-}S\text{-}S\text{-}CH_2\text{-}R} + 2\underset{\text{Ammonium thioglycollate}}{HS\text{-}CH_2\text{-}COONH_4} \rightarrow 2\underset{\text{Reduced Keratin}}{RCH_2\text{-}SH} + \underset{\text{Ammonium dithioglycollate}}{(S\text{-}CH_2\text{-}COONH_4)_2}$$

This probable reaction is a reduction reaction so far as the keratin is concerned, but it is accompanied by an oxidation of the ammonium thioglycollate to ammonium dithioglycollate. In accordance with reduction reactions in general, this reaction is apparently reversible and tends to reach an equilibrium. Presence of an excess of ammonium thioglycollate tends to drive the reaction in the direction of keratin reduction. As, however, the concentration of ammonium thioglycollate is steadily reduced as the reaction proceeds, the rate of reduction diminishes. Conversely, the concentration of the product of reaction, ammonium dithioglycollate, steadily increases until the reverse oxidation reaction is brought to a point resulting in an equilibrium.

Some of the reducing agent, however, tends to remain in the hair, and it is generally desirable to remove this by a subsequent oxidation and/or rinsing treatment.

In accordance with the preferred process of our invention, particular oxidizing agents are applied to the tress. These oxidizing agents are especially effective because they tend to rebuild the linkages to a higher level. While such rebuilding may be accomplished by application of excess ammonium dithioglycollate to the coiled tress, tending to drive the reverse oxidation reaction to completion, we have found that economical, stable and otherwise desirable oxidizing agents are the soluble ammonium, alkali and alkaline earth iodates and bromates. Particularly effective agents of this type are sodium and potassium bromate or iodate, which may be applied in five per cent aqueous solution.

Oxidizing agents of this type offer many outstanding advantages. Foremost among these is their freedom from tendency to bleach the hair and in this respect they avoid the disastrous effects which may be encountered in the use of peroxides. Furthermore, these oxidizing agents may be applied without particular regard to the alkalinity of the hair. Where peroxide is used, the degrading action thereof on the hair under alkaline conditions is so pronounced that it is necessary to rinse the tresses before the compound can be applied. This rinsing operation is a painful and objectionable experience and involves the expenditure of time. Both the time and discomfort are eliminated where oxidizing agents of the type of this invention are utilized.

A further novel result secured by the utilization of our particular oxidizing agents is found in the action of such agents on any residual waving solution present in the hair and upon the keratin itself. These agents react with any residual ammonium thioglycollate present in the hair to oxidize the ammonium thioglycollate to ammonium dithioglycollate, thus generating in situ an excess of ammonium dithioglycollate to accelerate oxidation of the reduced keratin. Additionally, these agents act as direct oxidizing agents for the reduced keratin, destroying sulfhydryl groups and forming new linkages.

In addition to previously mentioned advantages of the particular oxidizing agents of this invention in the actual hair-waving operation, they are stable both dry and in solution and the strength of the solution will be maintained. This characteristic is not found

(*Continued on page 553*)

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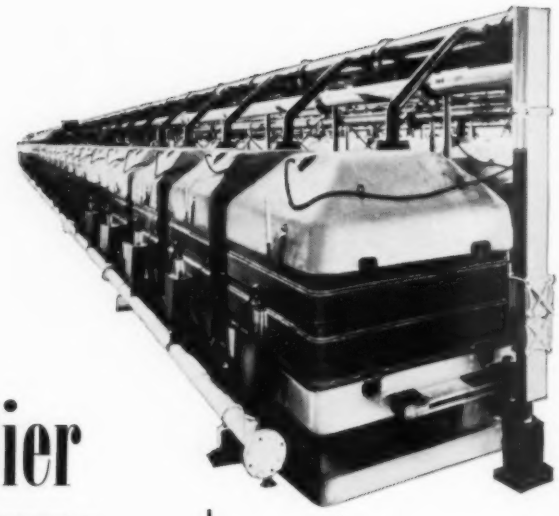

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Animal Health

Aureomycin for Canine Coccidiosis

According to I. E. Altman (*J. A. V. M. A.* 119:207, 1951) aureomycin has been found to possess anticoccidial activity against experimental avian coccidiosis (*E. tenella*) and, on this basis, its use was suggested in the dog. His report covers the use of aureomycin in 25 dogs of various breeds, ranging from 6 weeks to 5 months of age, seen in a small animal hospital in Brooklyn, N. Y.

All dogs in this series were treated until feces were negative for coccidial oocysts. In all cases, the immediate effect was striking. Within 48 hours, there was abatement of clinical symptoms and diarrhea was controlled, thereby escaping the severe dehydration, lowered vitality, weight loss, depression, and weakness usually seen. Appetites quickly returned to normal. Coughing persisted in some animals but cleared following specific treatment. Regardless of the time under treatment and the dosage used, the animals remained physically well and growth was normal. In dogs badly dehydrated and in generally poor physical condition, secondary infections have frequently been a problem. In the cases reported, there were no complications and, in the majority of cases, supportive treatment was not necessary, presumably because of the bacteriostatic effect of aureomycin.

Caution on Antibiotics for Mastitis

It is reported by H. C. Hansen, G. E. Wiggens and J. C. Boyd (through *Food Eng.* 23:157, May, 1951) that penicillin, streptomycin, aureomycin, sulfanilamide, and sulfamerazine, when used to treat mastitis, are given off in milk in sufficient amounts to restrict growth of lactic acid bacteria. If as little as 1 per cent milk from a treated quarter is included in that used for the manufacture of cheese, a poor quality product results. When cream is separated from the milk and cultured for butter-making, as little as 1 per cent cream from quarters treated with penicillin and streptomycin restricts growth of the lactic acid bacteria, and powder manufactured from this same milk restricts growth of acid bacteria when reconstituted. Powder made from milk containing sulfanilamide, sulfamerazine, and aureomycin, on the other hand, has a definite stimulating effect on acid production in reconstituted milk.

Their tests showed there was no diffusion of the drugs from treated quarters to the untreated ones. Therefore, it is recommended that milk from treated quarters be discarded or fed to livestock for 3 days or 6 milkings after treatment.

This recommendation is the same as that made by the Committee on Antibiotics in Milk, a group appointed by the American Dairy Science Association. According to D. J. Haukinson in the *Massachusetts Dairy Digest* for July 14, 1951, the committee has gone on record to state that "it is not opposed to the use of antibiotics in the treatment of mastitis; in fact, this committee visualizes these products as an aid to better dairy practices in a program of high quality milk production. If, however, no control is exercised in the disposition of milk containing antibiotics these 'wonder drugs' stand as a constant threat to the quality of all lactic type dairy products and thereby loom as a barrier to the sound economy of the dairy industry."

Leptospirosis—New Herd Problem

According to D. N. Stern (*Massachusetts Dairy Dig.*, Aug. 10, 1951) a relatively new disease of dairy cattle, called leptospirosis, has been reported in several states, including Connecticut, New York, Montana and Illinois. Some of the symptoms noticed have been icterus or jaundice, bloody urine, abnormal milk, a decrease or cessation of milk production, light-colored bowel movement, a temperature of from 103° to 107°, and abortion. Cattle from different herds may only show one of these symptoms. After recovery from leptospirosis, the animals become carriers for an extended period of time and it is during this period that there is danger of infecting the herd. However, Stern notes that a blood test will usually tell whether an animal has the disease or not and an examination of the urine will point out carrier animals.

Two antibiotics, streptomycin and aureomycin, are effective in eliminating the disease in dogs and laboratory animals. Now that the price of these drugs has been reduced, it may be economical to use them on cattle. A vaccine is being perfected in California at the present time. These workers are about half finished with their project and results are very encouraging. This infectious disease of dairy cattle is important not because of a great number of deaths, but due to losses in milk yield, prolonged periods of convalescence, and the destruction of anticipated calf crops.

Growth-Promoting Effect of Aureomycin

In their report to the Twelfth International congress of Pure and Applied Chemistry, on September 10, 1951, E. L. R. Stokstad, T. H Jukes and W. L. Williams stated that small quantities of aureomycin and other antibiotics, about one quarter to one half ounce per ton of feed, are now widely used in practical ration for poultry and pigs. Improved growth, often accompanied by the prevention of minor intestinal complaints, has been obtained with many other species which received aureomycin, including dairy calves, rabbits, mink, rats and even rainbow trout and tropical fish. It is assumed that the beneficial effects are due to the action of the antibiotics in preventing the growth of harmful bacteria in the intestine. Attempts have been made to identify the types of bacteria which are eliminated, but nothing definite has been reached and probably there are several forms of injurious microorganisms which are removed by small amounts of aureomycin. Some of these organisms are thought to be responsible for scouring and certain respiratory diseases in calves and for bloody diarrhea which causes stunting and runtiness in young pigs.

The growth-promoting effect of aureomycin is observed even when large amounts of the known vitamins are added to the diet or are administered by injection. The improvement in growth is more marked with experimental diets which contain sugar rather

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than when starch is used as a source of carbohydrates. This may be due to the well-known differences between various carbohydrates in modifying the types of intestinal bacteria. The use of small amounts of aureomycin and other antibiotics in feeding farm animals increases the growth rate by improving their health. The animals do not grow to an abnormally large size, but they reach market weight more quickly and their efficiency of food utilization is increased.

Of interest in this connection is a paper presented before the American Dairy Science Association at Knoxville, by L. L. Rusoff and A. V. Davis. They reported that aureomycin caused a growth increase of 25 per cent in Jersey calves and 15 per cent in Holstein calves. They also noted that the antibiotic appeared to lower the incidence of scours.

Stability of Dry Vitamin A Concentrates

In their report in *Industrial and Engineering Chemistry* (43:1592, 1951), M. J. Burns and F. W. Quackenbush pointed out that manufacturers of commercial feeds and livestock feeders have long been plagued with the problem of vitamin A deterioration between the time of addition of the vitamin and the consumption of the feed. In efforts to solve this problem, a number of suppliers of vitamin A products have recently placed on the market dry vitamin A preparations which are claimed to be stable. An investigation was therefore made to compare the stability of these products, both as received and when mixed with some of the common ingredients of feeds.

The results show that all of these dry vitamin A products represent an improvement over vitamin A oils of the past, but that none of the dry products is greatly superior to the others. Burns and Quackenbush found that the seven different dry commercial vitamin A products containing 150 to 1500 micrograms of vitamin A or carotene per gram retained 60 to 85 per cent of their initial vitamin during a six-month storage period in the dark at room temperature. The highest stability was shown by products which employed vegetable meals or the antioxidants which they contain.

A portion of each of the products was mixed with corn meal, soybean oil meal, or glucose in such proportions that the mixtures contained approximately 10 micrograms per gram of vitamin A or its equivalent in esters or β-carotene. Soybean oil meal (expeller) improved the stability of the vitamin in most of the products. Ground yellow corn showed a similar effect but to a lesser degree. Glucose (cerelose) diminished the stability in all cases.

Ammonium Lactate for Ketosis in Cows

Since 1942, says L. Seekles (*Vet. Rec.* 63:494, 1951), ammonium lactate therapy in ketosis in the milk cow has been practised in numerous cases in the Netherlands and, as a rule, with good results. In cases of impairment of liver function, a supply of lactate to the liver will raise the glycogen content and in this way improve its function. Moreover, the drug has a weakly laxative action, so it acts favorably in cases of ketosis showing constipation. Ammonium lactate is administered by mouth twice a day, each time in a quantity of about 120 Gm. (4 oz.) of commercial ammonium lactate at a strength of about 80 to 85 per cent. The drug has to be diluted with about a pint of water prior to administration or it may be mixed with other materials and pressed to cakes. In persistent cases of ketosis the administration of ammonium lactate should be continued for more than five days. Checking the presence of acetone in the urine after six days is advisable. More particularly in cases of alimentary ketosis, as when grass silage containing much butyric acid and a low content of lactic acid was used as a fodder, ammonium lactate therapy gave favorable results.

Combined Newcastle and Fowl Pox Vaccines

In a study involving 235 chickens, J. E. Prier (*Vet. Med.* 46:103, 1951) used a mixed Newcastle disease-fowl pox vaccine to immunize the birds against both diseases. There was 100 per cent protection to challenge doses of Newcastle disease virus and 80 to 90 per cent protection against fowl pox virus following vaccination with the mixed vaccines. A two-pronged wing-web stick was used for all vaccinations.

The combined vaccine was made up in 50 per cent glycerine at pH 7.6. To prepare the vaccine, 10 cc. of Newcastle virus suspension and 10 cc. of fowl pox virus suspension were added to 80 cc. of 50 per cent buffered glycerine. The glycerine diluent was prepared by dissolving 1.62 Gm. of anhydrous potassium dihydrogen phosphate in 375 cc. of glycerine (C. P.) and 375 cc. of distilled water. The vaccines were stored at -17°C prior to use. Separate fowl pox and Newcastle vaccines were prepared by adding 10 cc. of the respective embryo suspensions to 90 cc. of the glycerine diluent.

Vitamin B_{12} and Aureomycin for Poult Growth

In studies on the effects of vitamin B_{12} and crystalline aureomycin on the growth of poults, H. J. Almquist and J. B. Merritt (*Poultry Science* 30:312, 1951) found that vitamin B_{12}, added alone, caused only a minor increase in growth. On the other hand, aureomycin caused a uniformly large increase in growth. The combination of the two supplements was not more growth-promoting than aureomycin alone, which may indicate that these poults had a good reserve store of vitamin B_{12}. Their results show that there was no appreciable sex difference in response to the supplements.

Cyclopropane Anesthesia

According to a note in *Science News Letter* (60:59, 1951), S. A. Peoples has reported the first successful use of gas for general anesthesia of large animals. He found that cyclopropane, the compound used in the experimental studies on cows, bulls, horses, and sheep, acts speedily and permits rapid recovery without dangerous side effects. On the basis of these observations, Peoples predicted that the anesthetic may prove a distinct contribution, particularly in work with horses and bulls which present special problems. Further trials are now being made.

Stable Fly Repellents

As a part of a study by the Bureau of Entomology on the use of repellents to protect man against biting insects, a number of materials were tested against the stable fly, *Stomoxys calcitrans* (L.), in Florida. In these laboratory and field tests, report B. V. Travis and A. L. Smith (*J. A. V. M. A.* 119:214, 1951), indalone, 2-phenylcyclohexanol, *p*-methoxyacetophenone, and the pinene ether of glycol showed outstanding effectiveness. Dimethyl phthalate, Repellent 612, and oil of citronella were relatively ineffective. The addition of thickeners to Repellent 612 or dimethyl phthalate did not extend the repellent time. When the flies were aggressive, the repellent time was shorter.

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Readers' Questions

BUFFERED ANTI-PERSPIRANT: We are seeking an effective anti-perspirant. Of course, the usual ingredients that are effective are the aluminum salts in an aqueous solution but we know that it must be a buffered solution. This means that another ingredient or ingredients are added to counteract the skin irritating effects of aluminum salts. Chicago.

I should like to point out that quite a number of substances such as borax, sodium sulfocarbolate and urea, have been used in anti-perspirant solutions as buffers to reduce the tendency to irritation. One well known product of this sort consists of:

Aluminum sulfate	**25 parts**
Urea	**15 "**
Water	**60 "**

Another product of this type can be prepared by using the following rather simple combination:

Aluminum chloride	**130**
Urea	**30**
Distilled water	**840**

Dissolve the aluminum chloride and urea in the water and filter. The use of a filter press is recommended, but filtration through paper with the aid of diatomaceous earth (Kieselgur) will do. The solution should not come in contact with metal, especially not with iron.

RUBEFACIENT OINTMENT: May I take the liberty of requesting help in solving my problem, which is to incorporate a strong rubefacient in a non-greasy base. Dayton.

I think that a product such as you want has been provided in Belanger's text as follows:

Stearic acid, double pressed	**60 oz.**
Glycerine	**40 fl. oz.**
White mineral oil	**20 fl. oz.**
Water	**276 fl. oz.**
Concentrated ammonia, 26 degree	**6 fl. oz.**
Menthol	**3 oz.**
Methyl salicylate	**12 fl. oz.**
Oil of mustard, artificial	**½ oz.**
Oleo-resin of capsicum	**30 gr.**

Melt the stearic acid. Heat the water to 160°F. and add the ammonia. Pour this mixture into the melted stearic acid and stir until it forms a smooth mixture. Then stir in the glycerine and white mineral oil. Remove from the fire and add the menthol, let cool and when it begins to thicken a little, add the methyl salicylate and the oleo-resin of capsicum rubbed up with the oil of mustard. Mix well and fill into tubes. This double-action analgesic-counter-irritant ointment is recommended as an external application for rheumatic pains, lumbago, sprains and strains of muscles and tendons, muscular soreness from exposure, fatigue, exertion or dampness.

GREASELESS HAIR CREAM: One of our customers has asked us for a greaseless hair grooming preparation. We are wondering whether you could let us have such a formula. Middletown.

Most American preparations contain various amounts of mineral oil or a lanolin or both and therefore give a somewhat greasy preparation. However, a check of one of the British texts yielded the following formula for a greaseless hair cream:

Shellac, water-soluble	**10 Gm.**
Tincture of benzoin or styrax	**1 Gm.**
Sulphonated castor oil (cosmetic grade)	**7 Gm.**
Borax	**2 Gm.**
Preservative	**sufficient**
Water	**80 Gm.**

HAIR RINSES: Will you please give me a formula for an effective soap curd rinse to be used on hair? A rinse which we could prepare and which would remove soap left in hair from previous shampoos. Our objective is perfectly clean hair to be permanent waved. Decatur.

As you are probably well aware, vinegar and lemon rinses have long been used to remove any residual soap in hard water areas. Although a number of other mild acids can be used as a rinse for the hair, the choice in commercial preparations is generally made from boric, citric, lactic and tartaric acids. A typical preparation using such materials might consist of:

Tartaric acid	**15 parts**
Citric acid	**15 "**
Lactic acid	**2 "**
Alcohol	**40 "**
Water to make	**100 "**
Perfume and color	**sufficient**

Dissolve the acids in water with the aid of heat, cool and dilute with alcohol which contains the perfume. Filter bright after standing for a week. Use plastic closure on the bottle.

In addition to such old fashioned preparations, the quaternary ammonium compounds are also entering the picture as effective hair rinses, which leave the hair soft, lustrous, and easy to comb. A preparation of this sort, a cream hair rinse, may be made along the following experimental lines:

Quaternary ammonium compound	**4 per cent**
Glyceryl monostearate	**3 " "**
Water, to make	**100 " "**

Compounder's Corner

Ophthalmic Ointment Base

According to a note in the *Journal of the American Medical Association* (146:691, 1951), Aquaphor (a proprietary hydrophylic ointment base) with water is usually satisfactory as an ophthalmic ointment base. However, in many instances anhydrous bases are more suitable and are required with certain drugs commonly used for local application to the eye. Such drugs as penicillin and eserine will fit in this category. For this reason a base, such as the following, might be considered more suitable:

Wool fat	**25 per cent**
Petrolatum	**50 " "**
Liquid petrolatum	**25 " "**

This base has proper consistency and spreading action. In many instances aqueous bases are not desirable, since the liberation of the drug from the base is too rapid to accomplish suitable therapeusis. In these instances the base delineated above is more suitable.

Powdered Vitamin A

As noted in the *Manufacturing Chemist* (22:130, 1951), British patent 598, 241, issued to World Products Corp., describes a process for the manufacture of powdered vitamin A. According to this patent an edible vitamin A preparation in powder form is prepared by macerating animal livers, extracting the water-soluble constituents by mixing the macerated livers with warm water at about 60°C. for about 20 to 30 minutes in the presence of lactic acid, separating the fluid from the water-insoluble portion, and drying the residue of water-insoluble constituents *in vacuo* at low temperature. The lactic acid in the extracting fluid is present in amounts from 1 to 0.1 per cent by weight of the mixture. The dried residue serves as a carrier for fish-liver oil. The fish oil is added in amounts up to 1 part of fish oil to 15 parts of dried liver residue. It is preferred that the drying of the liver residue should take place *in vacuo* in a gaseous atmosphere such as nitrogen or carbon dioxide at a temperature of the order of 100° to 110°F., and when dry a small amount of tribasic calcium phosphate is added to keep it dry. It is claimed that in the product the stability of the vitamin A potency is very high, the natural anti-oxidants of the liver are substantially intact and the enzymic activity is practically nil.

Beeswax from Zanzibar

Considering the shortage of supplies of beeswax, E. Brown, T. J. Coomes and M. W. Jarvis (*Colonial Plant & Animal Prod.* 1:230, 1950) feel that the data they have obtained on a sample of beeswax from Zanzibar should be of interest. After filtration to remove the small proportion (0.37 per cent) of dirt, the physical and chemical constants of the beeswax were compared with those of Cera Flava (Yellow Beeswax) of the British Pharmacopoeia, as given in the table below.

From the results of the examination, and from the commercial opinions received, it is clear that the sample, which conforms to the requirements of the British Pharmacopoeia for Cera Flava (Yellow Beeswax) is of good quality.

	Zanzibar Sample	*Requirements of the British Pharmacopoeia*
Specific Gravity 15.5° C./15.5° C.	0.9632	—
Refractive Index, $n^{80°}$ C.	1.4387	1.4380 to 1.4420
Melting Point (open tube method), °C.	63.6	62 to 64
Acid Value, mg.KOH/g. wax	18.3	17 to 23
Ester Value, mg.KOH/g. wax	77.0	70 to 80
Ratio Number (ester value: acid value)	4.2	3.3 to 4.2
Iodine Value (Wijs. 3 hr.) *per cent*	8.5	—
British Pharmacopoeia test for the detection of fats, fatty acids, japan wax and resin	Conforms	—
British Pharmacopoeia test for the detection of ceresin, paraffin and certain other waxes	Conforms	—

Reference Text on Calcium Carbonate

Tremendous interest and requests for the two free volumes distributed early this year "Talcs" and "Metallic Soaps" led Whittaker, Clark & Daniels, Inc., 260 West Broadway, New York 13, N. Y., to produce a new third volume "Calcium Carbonates and Calcium Oxides." As far as can be ascertained, it is the only data book that covers the subjects of domestic, imported and precipitated calcium carbonate in one volume. It is divided in four sections; natural sugar calcite, imported natural chalk (whiting), precipitated calcium carbonate and calcium oxide (lime). Charts, tables of physical constants and chemical compositions as well as detailed descriptions of uses and values are given for each carbonate. Vast research was basic to answering every question that a manufacturer might ask about the uses, properties and availability of the various calcium carbonates and calcium oxide (lime). Although copies are free, distribution will be made only to manufacturers and chemical research organizations.

Compounding Cream Shampoos

In the opinion of S. C. Jannaway (*Soap, Perf. & Cosmetics* 24:350, 1951), the two major problems in the formulation of cream shampoos are the inclusion of adequate thickening, opacifying and "bodying" agents; and the choice and inclusion of emollients, designed to offset the excessive degreasing action of the synthetic detergent bases.

Sodium stearate, or hard soap, is one of the cheapest and best of thickening agents for use in certain types of formula. It should not be present, however, in proportions that adversely affect form-formation or produce calcium soaps when the hair is rinsed after shampooing. Proportions from 5 to 10 per cent, but usually not exceeding 8 per cent, are normally satisfactory.

Other thickening agents include inorganic salts such as ammonium chloride (2 to 4 per cent); polyglycol stearates such as polyethylene glycol 400 distearate (3 to 6 per cent); diethylene glycol stearate, glyceryl mono- and di-stearates; traces of free stearic acid;

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U.S.I. CHEMICAL NEWS

October ★ A Monthly Series for Chemists and Executives of the Solvents and Chemical Consuming Industries ★ 1951

Water-Repellent Aerogels Dry Without Shrinking

Production of improved aerogels which have all the properties of dried gels made with present methods, but with the added advantage of water-repellency, is claimed possible with a new process recently patented in Canada.

Aerogels are valuable in removing undesirable compounds from lubricants, refining sugar, purifying gases, absorbing vapors, dehumidifying air, and as carriers for contact catalysts. Up to this time, however, they have suffered from effects of water and humidity, with the result that they shrink on drying out.

High Volume to Weight Ratio

The new aerogels are said to have an extremely high volume to weight ratio, to be highly resistant to moisture, and to overcome successfully the problem of shrinkage on drying. The materials are reported to be useful as fillers for heat insulation and as additives for greases, anticaking agents, printing inks, paints, varnishes, and lacquers. Silica aerogels are incombustible and are said to be suitable substitutes for kapok in life preservers.

Non-Aqueous Titrations Simplify Control Analyses

Non-ionic titration in solvents other than water is described as a promising new analytical tool, the possibilities of which have only been touched upon as yet. Present techniques include a method for titrating an oxazoline in glacial acetic acid with perchloric acid in acetic acid as titrant, replacing a lengthy Kjeldahl procedure formerly used for the determination. Another method can be used to titrate halides, nitrates, sulfates, and phosphates of amines, heterocyclic bases, and quaternary ammonium compounds—including such physiologically active compounds as vitamins, antihistamines, and alkaloids, it is said.

Enthusiastic analysts claim that non-aqueous titrations reduce markedly the cost of running many routine determinations. Less expensive and less complicated equipment is needed, and precision and accuracy are said to be good, all of which are primary requirements of product control laboratories.

Brain Chemical May Cause High Blood Pressure

A recently discovered chemical which is secreted by the brain and passed directly into the blood stream is thought to be a possible factor in causing high blood pressure. The chemical has not been completely identified as yet but is said to resemble serotonin, a substance found in clotted blood. Indications of the chemical's action were obtained when blood pressures of volunteer patients were lowered markedly on administration of hydrazinophthalazene, a drug known to counteract the new compound. The chemical is a possible explanation of why mental stress and anxiety can raise blood pressure, it is said, because mental tension causes an increase in the brain's secretion of the substance.

U.S.I. to Exhibit Products At Three Trade Shows

Will Have Displays at American Vocational Assn. Convention And Georgia State Fair — Complete New Exhibit Booth Being Readied for Paint Industries Show in November

Products of U. S. Industrial Chemicals Co. Division of National Distillers Products Corporation will be exhibited at two conventions and a state fair this fall, company officials announced recently. A U.S.I. exhibit featuring Pyrenone* Grain Protectant — illustrating the grains it protects, the types of storage facilities in which it is effective, and how farmers should apply it — will be on display at the 96th annual Georgia State Fair, to be held this year October 15 through 20 at Macon, Georgia. About 125,000 farmers and members of such groups as Future Farmers of America and 4-H clubs attend the fair each year.

Pyrenone Grain Protectant exhibit to be displayed at American Vocational Association Convention and Georgia State Fair.

Response to the introduction of Pyrenone Grain Protectant has been especially enthusiastic in the South, where insect infestations are severe because of the warm climate. U.S.I. plans to have continuous showings of the new sound movie "Wicked Willie Weevil" at the booth, since it dramatizes the Southern farmers' insect control problem.

Vocational Group Has Large Agricultural Membership

The Pyrenone Grain Protectant exhibit will also be displayed at the American Vocational Association Convention to be held at

MORE

Separate Aromatics Using New Silica Gel Process

A method for commercially separating aromatics by means of silica gel is expected soon to add an annual 13 million gallons of benzene, 30 million gallons of toluene, and 15 million gallons of xylenes to the country's production of these critically needed materials.

Developed from a technique used in petroleum analysis, the process consists of passing an aromatic-rich stream from a catalytic reforming process through a bed of silica gel which retains the aromatics and allows the saturate portion to pass through. When absorption capacity of the gel is reached, the feed is shut off and the bed desorbed, first with a stream of mixed xylenes which washes out residual charge stock, then with a stream of butane which gradually displaces the absorbed aromatics. A light sulfuric acid treatment and final fractionation is reported to produce specification products.

Article Abstracts Apply Statistical Engineering To Chemical Industries

Abstracts of articles on statistical engineering as applied to chemical process industries such as food, refining, pulp and paper, and rubber, are compiled in a single 48-page booklet just published. Statistical engineering is the application of theories of statistical mathematics to experimental processes in order to arrive at most efficient and least costly operation from the standpoint of objectives and results. According to the booklet, statistical methodology has been relatively neglected in chemical experimentation as compared to its use in other fields.

Glycerine-Zirconium Oxide Seen as Poison Ivy Remedy

Poison ivy sufferers will be interested in a new vanishing-cream type of ointment which is reported to have shown highly satisfactory results in medical tests. Containing zirconium oxide and glycerine as principal active ingredients, the ointment is claimed to have cleared up promptly 40 of 47 clinical cases of ivy poisoning treated. In tests on volunteers who were exposed to poison ivy extract, results indicated that the ointment may act as a preventive for poisoning as well as a cure.

Explosion-Proof Glass

A super-laminated plate glass window, developed to minimize effects of explosive forces and to eliminate dangers of flying glass, is reported to have performed successfully in tests involving blasts greater than that of a Hiroshima-type A-bomb at a distance of one mile. Outer layer of the laminate is glass, the middle one is a partially segmented sheet of polyvinyl butyral plastic, the edges of which are bolted to the window frame. The inner layer consists of four triangular pieces of glass held in place by the plastic. When the outer layer is broken by the blast, the plastic layer and inner glass segments swing inward and can later be returned to original position. The plastic's unusual flexibility and resistance to rupture is said to prevent the glass segments from being torn away from the window frame by the impact of the explosion.

CONTINUED

Trade Show Exhibits

Minneapolis, Minnesota, November 26 through December 1. At the present time, about half of the A.V.A.'s membership is made up of agricultural personnel, and a high percentage of those who will attend the convention are people who teach and deal with rural youth and adults. This A.V.A. agricultural group,

Artists's conception of the new U.S.I. trade-show exhibit booth that will be unveiled at the Paint Industries' Show. Theme of the new booth is "Keep Posted on New Developments—Keep Your Eye on U.S.I."

who have tremendous influence on today's farmers and future farmers, will have a chance at the convention to get first hand knowledge about U.S.I.'s important new Pyrenone Grain Protectant.

Design New U.S.I. Exhibit for Paint Industries' Show

A completely new U.S.I. trade-show exhibit is under construction now and will be unveiled at the Paint Industries' Show at the Haddon Hall, Atlantic City, New Jersey from October 31 through November 3. Held in conjunction with the annual meeting of the Federation of Paint and Varnish Production Clubs and the National Paint, Varnish and Lacquer Association, this show brings together the members of the protective coatings industry and the raw materials and equipment manufacturers who supply that industry.

Theme of the new U.S.I. booth will be "Keep Posted on New Developments—Keep Your Eye on U.S.I." U.S.I. resins, alcohols, and solvents used in the protective coatings industry will be on display, with samples and literature available.

**Reg. U.S. Pat. Off.*

New Washer Eliminates Bottle-Washing Bottleneck

"Dishwashing" problems, a perennial headache for laboratory management, are reportedly solved with a new automatic glassware washer recently introduced to the market. Designed with problems of both service and industrial laboratories in mind, the washer is said to handle six large baskets of laboratory ware at once—bottles, funnels, tubes, flasks, pipettes, Petri dishes, and microscope slides—and to deliver them thoroughly washed and rinsed, chemically clean in a fraction of the time required by conventional methods.

Baskets and holders are available separately for various types of ware. In operation, the proper baskets are loaded and fitted on a drum which rotates ferris-wheel fashion at 9 r.p.m. in and out of a cleaning solution. By means of jets located at one end of the tank, glassware can be given hot and cold rinses as desired, and, in the steam-heated model, can be treated with live steam as well. In action, the washer is said to require only a few minutes of the operator's time, thus releasing him for other duties.

Radioactive Phosphorus Measures Tire Wear

Radioactive phosphorus is reported to be the tool with which scientists are able, for the first time, to measure accurately the wear of rubber tire treads. The isotope, obtained from Oak Ridge, is incorporated in the compounds forming the top layer of tread material of special test tires. A portable Geiger counter, mounted on a small cart behind the wheel, scans the track made by the radioactive tire as it proceeds on the road surface. X-ray photographs of the track allow precise measurement of the size and amount of rubber particles worn off, and a scoop and filter arrangement back of the tire collect for measurement the particles that are blown into the air.

This method is said to have the advantages of giving instantaneous data and of enabling the evaluation of such factors as the type of road surface and temperature, speed, tire pressure, and transmission of power on tread wear.

TECHNICAL DEVELOPMENTS

Information about manufacturers of these items may be obtained by writing U.S.I.

Rapid surface tension measurements, accurate within 5 per cent, are said to be obtainable by even inexperienced workers with a new meter which can be used with all types of solutions except those containing free fluorine ions. **(No. 729)**

Improved rubberized paper is said to result from a new method for adding rubber latex to pulp. Product reportedly has high wet strength and good chemical resistance, and to be suitable for gaskets, multi-wall bags, and box-paper. **(No. 730)**

A new vinyl light stabilizer reputedly withstands 6,000 Weather-Ometer hours compared with the 1,000-hour maximum for most other formulations. The stabilizer is designed for use in sheeting for raincoats, draperies, shower curtains. **(No. 731)**

A synthetic resin cement that sets hard in contact with concrete and metals, is said to join brick and tile and to adhere glass, concrete, metal, and other materials. Resistance to many acids, solvents, greases, and oxidizing agents is claimed. **(No. 732)**

A plastic substitute for decorative metal is being offered for use in radio cabinets, name plates, signs, etc. The material has a mirror-like metallic appearance, is easily laminated to heavy board, and takes silk screening and other reproducing processes, it is claimed. **(No. 733)**

A leak-indicating machine is designed to test steel drums and other types of sealed containers before they are filled with oil or chemical products. According to the maker, the machine is low priced and can be installed by an inexperienced maintenance man in a few minutes. **(No. 734)**

An anti-rust paint which can be applied over rust without scraping or wire-brushing is claimed to be equally effective in preventing rust on new metal and in stopping rust action on already corroded metal. Available in black and in a clear finish which can be painted over with any standard paint. **(No. 735)**

A new synthetic rubber flooring for industrial applications is reputed to dry to a pleasing light concrete color and to bond inseparably, without preliminary treatment, with wood, metal, concrete, brick, slate, stone, asphalt mastic, composition, and other bases. Good resistance to loads of considerable weight is also claimed. **(No. 736)**

A rust-preventive paper wrapping, designed to protect heavy machinery and bulky metal parts during storage and shipping, is described as being tough, resilient, tear-resistant, and moisture- and water-repellent. Product consists of two kraft sheets cemented together and reinforced with spun glass fibers. The inner sheet is impregnated with a volatile rust-inhibitor. **(No. 737)**

A new all-purpose cleaner, said to combine the advantages of an all-vegetable oil soap with those of a synthetic detergent and an alkaline polysulfate, is formulated for efficient action in hard as well as soft water, either hot or cold. **(No. 738)**

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Acetoacet-ortho-chloroanilide
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Ethyl Acetoacetate
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and a number of gums and gum substitutes, such as polyvinyl alcohol and sodium alginate. In all cases, it is essential that these additives should rinse easily from the washed hair shaft.

Most of the thickening agents are also useful as opacifiers. Other aids to opacity are sometimes required, however, and here recourse may be had to certain metal soaps or synthetic resins. Magnesium stearate (1 to 3 per cent) comes into the former category, while traces of concentrated proprietary dispersions of methyl methacrylate resins are typical of the remarkably stable and opaque resinous additions.

So far as emollients are concerned, practice is consistent enough but opinion is still somewhat divided. In Jannaway's opinion it is probably true to say that, as yet, no ideal emollient, superfatting agent or hair conditioner has yet been found for inclusion in cream shampoos. Of the conditioners currently used, mention should be made of lanolin (0.3 to 1 per cent, anhydrous basis), polyglycols and polyglycol esters, fatty alcohols and some of the colloidal additives and gelling agents used as thickening agents.

Chamomile in Cosmetics

After citing the long history of chamomile as a healing aid, T. Ruemele (*Manuf. Chem.* 22:276, 1951) discusses the three varieties of chamomile and the characteristics of its blue essential oil. He notes that because of its soothing action on the skin and its stimulation of the hair roots, it is not surprising that attempts have been made to incorporate chamomile in cosmetic preparations. Of course, practical experiments are necessary to decide whether these properties of the chamomile are retained when it is thus used. It is usually the extract of chamomile which is incorporated in cosmetics. The extract is made by percolation of the powdered flowers with alcohol—*e.g.*, 100 Gm. powdered flowers of chamomile, 1,000 cc. alcohol 95 per cent. A soluble extract is conveniently prepared according to the method given in Swiss patent 262,262.

The following formulas are given to illustrate the opportunities for the application of chamomile, which hitherto has been known cosmetically only as an ingredient of shampoos:

Cold Cream

White wax	11.7
Spermaceti	15.3
Liquid petrolatum	45.0
Water, dist.	8.0
Borax, cryst.	25.2
Extract chamomile	1.5
Perfume	0.5

Vanishing Cream

Stearic acid	14.20
Glycerine	21.50
Alkaline agents	2.84
Lanolin, anhydr.	2.50
White wax	0.71
White gelatin	0.47
Alcohol, 96 per cent	1.12
Tincture benzoin 1:10	0.70
Agar	0.50
Water, dist.	54.16
Extract chamomile	0.70
Perfume	0.60

Pastes

(1)

Powdered chamomile	15.0
Zinc white	10.0
Talcum	24.7
Petrolatum	45.0
Liquid petrolatum	5.0
Perfume	0.3

(2)

Petrolatum	41.0
Lanolin, anhydr.	30.5
Liquid petrolatum	7.0
Extract chamomile	2.5
Boric acid	6.0
Zinc white	6.0
Water dist.	7.0

Powder

Salicylic acid, pwd., subt.	1.0
Potato starch	20.0
Zinc white	10.0
Extract chamomile	5.0
Talcum	63.5
Perfume	0.5

Hair Preparations

(1)

Liquid soap, 25-30 per cent	1000
Extract chamomile	0.005
Cymene	0.025

(2)

Turkey red oil	59.0
Water, dist.	47.5
Extract chamomile	3.0
Perfume	0.5

Stabilizers for Hydrogen Peroxide

J. Isemura and S. Nakamura (*Science Japan* 19:379, through *Chem. Abstr.* 45: 5500, 1951) have estimated the decomposition of hydrogen peroxide in aqueous solution in the presence of various stabilizers at 80° C. Among the stabilizers tested were 8-hydroxy-quinoline, sodium stannate, sodium pyrophosphate, *beta*-naphthylamine, toluidine, and *alpha*-nitroso-beta-naphthol. The last three compounds were found for the first time to be fairly effective. Decomposition curves of hydrogen peroxide in the presence of stabilizers showed two different types. In the presence of organic stabilizers, hydrogen peroxide was fairly stable for a certain period of time and then decomposed quickly. In contrast, inorganic stabilizers decreased the slope of the exponential functional curves of hydrogen peroxide decomposition from the beginning. It is suggested that there are different mechanisms of stabilizing for organic and inorganic stabilizers.

Toxicity Studies on Methylcellulose

The growing utilization of methylcellulose derivatives as laxatives suggested to R. O. Bauer and A. J. Lehman (*J. A. Ph. A.*, Scient. Ed. 40:257, 1951) that it would be worth while to publish chronic toxicity data obtained several years ago. The purposes of this study were to determine any alteration of growth, food intake, fecal output, urinary formic acid production, or reproduction produced by feeding various amounts of methylcellulose to albino rats.

They found that methylcellulose, fed to rats over three generations in quantities amounting to slightly less than 5.0 and 0.5 Gm. per Kg. body weight, has no deleterious effect on growth and significantly increased dietary intake. Also, it neither inhibits reproduction nor leaves evidence of pathologic changes in the tissues. Fifty per cent of the diet replaced by methylcellulose significantly depresses growth through nutritional want. Methylcellulose is not hydrolyzed to cellulose and methanol in the intestinal tract of rats to any detectable extent. Methylcellulose *per se* does not appear to be absorbed from the intestinal tract in rats.

Vitamin B_{12} from Sewage Sludge

According to their report in *Science* (114:213, 1951), S. R. Hoover, L. B. and N. Porges have found that activated sewage sludge is an important potential source of vitamin B_{12}, the anti-anemia vitamin which has also proved to be an important growth factor for animals. Tests of sludge from a municipal sewage treatment plant showed that the vitamin B_{12} content of the dried samples was well above that required in commercial animal feed supplements. This is an important consideration because the sludge has heretofore been used only as a fertilizer. Chick feeding tests are now under way to determine the value of sludge as a source of usable vitamin B_{12}.

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Advancing Therapy

Intravenous Alcohol for Opiate Addiction

In discussing its potentialities in cases of opiate addition, G. P. Child (*New York State J. Med.* 51:1521, 1951) points out that intravenous alcohol possesses many of the pharmacologic properties which would be useful in the treatment of the abstinence syndrome. Alcohol, when given in this manner, is not taken up so rapidly by the liver as when given orally, and a higher blood and cerebrospinal fluid alcohol level may be obtained. This should enhance the cortical depressant and false euphoric effect of alcohol and would make the patient more cooperative. The antipyretic, vasodilating, and analgesic effects would also be increased. Using 5 per cent alcohol as a basis and adding glucose, amino acids, and vitamins, it would be possible to maintain the nutrition of the patient and carry him through the withdrawal period with greater ease. With these considerations as a basis, Child administered alcohol, plus suitable supplements, to four patients with drug addiction. The results were encouraging, and although the patients experienced some withdrawal symptoms, these were comparatively mild and of short duration.

Local Use of Chloramphenicol

In *The Lancet* (2:65, 1951), V. M. Coppleson notes that recent clinical trials of the local application of chloramphenicol (Chloromycetin) suggest that in infected wounds, ulcers, burns, and even wounds infected by gas-forming organisms local application is superior to administration by mouth. Following its successful local use in two cases, including one with infection by gas-forming organisms, chloramphenicol has been directly applied by irrigation, by surface application of powder, and by ointment in a wide variety of cases, including burns and bed-sores. In several instances local application of pure powder in combination with other treatment, such as injection and bandaging, has resulted in unusually rapid healing of chronic leg ulcers. In all these cases local application has led to great clinical improvement. It also appears to stimulate healing.

Chloramphenicol has been applied in the following ways: 1. As a lotion to irrigate wounds and cavities by adding the contents of 2-4 capsules (500-1000 mg.) to 5 ml. of distilled water. 2. As a powder. Pure chloramphenicol has been used for small ulcers, or placed in operation wounds. For surface wounds or larger areas a dusting-powder of the contents of 2-4 capsules (500-1000 mg.) to one ounce of powdered starch and zinc oxide, equal parts, has been used. A trial is now being made of the following:

Chloramphenicol. . .	**500-1000 mg.**
Lactose	**1 oz.**

3. As an ointment, 500-1000 mg. in one ounce of plain petroleum jelly is being tried. It is probable that better bases will be found.

According to Coppleson, these clinical trials of the local application of chloramphenicol have been most impressive. They suggest that this is a most valuable therapeutic method, and that the antibiotic is probably more efficient when applied directly to open wounds than when administered by mouth.

Cobalt in Anemia

Several cobalt compounds have been studied by H. Wolff and S. Barthel (*Munchen. Med. Wochnschr.* 93:467, 1951) for their hematopoietic effects, possible secondary effects, and dosage in human anemia. Of 81 patients with various forms of anemia they treated 36 with intravenous injections of water-soluble cobalt chloride and 40 with intramuscular injections of an amino acid complex of cobalt. The intravenous injection of water-soluble cobalt had undesirable secondary effects in some patients, whereas the amino acid complex of cobalt was tolerated without such reactions. The latter complex is thus the preparation of choice. The reaction to dosage was tested by administration of 2.5 mg. of cobalt on the first day and 5 mg. on the second day. Thereafter, sensitive persons were given once or twice daily 2.5 mg. of cobalt, while persons with normal reactivity were given 5 to 10 mg. once or twice daily. Undesirable secondary effects were thus avoided, and treatment could be continued for the required period of 10 to 30 days. The small doses of cobalt exerted a decided erythropoietic stimulus. With the exception of pernicious anemia and macrocytic anemia, cobalt therapy is effective in almost all forms of anemia, particularly in those forms in which the bone marrow is slow to respond and require a more potent stimulus than iron therapy.

Postpartum Plasma in Arthritis

In summarizing the clinical observations of eight patients with rheumatoid arthritis treated with postpartum plasma over a period of two years, L. W. Gramirer (*J. A. M. A.* 146:995, 1951) feels that these cases have been followed long enough to permit an appraisal of this form of therapy. He reports that pooled postpartum plasma produced a gradual and sustained remission in rheumatoid arthritis. Remissions were observed to last from six weeks to one and one-half years. The chemical abnormalities present in the disease were restored to normal. Patients gained from to five to 30 pounds. An improved sense of well-being, a better appetite, increased vigor, strength, and amelioration of joint pain and swelling were routinely observed. There was no relationship between the sedimentation rate and the clinical improvement.

Moreover, in more than 500 postpartum plasma treatments there were no instances of homologous serum hepatitis. Unlike either pituitary adrenocorticotropic hormone (ACTH) or cortisone, postpartum plasma had no side effects; treatments were administered only once a week.

Methonium Salts in Hypertension

On the basis of 150 tests on hypertensives of varied etiology and 53 patients treated for periods of two to 14 months, F. H. Smirk and K. S. Alstad (*Brit. Med. J.* 2:1217, 1951) are of the opinion that when a suitable technique of administration is employed penta- and hexa-methonium salts appear to be most effective and generally applicable hypotensive agents. There is a close similarity in the hypotensive effects of penta- and hexa-methonium bromides, though formal tests show that hexamethonium bromide is usually slightly

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stronger in action. However, they have experienced no difficulty in interchanging these substances at approximately the same level of subcutaneous dosage.

Blood-pressure reduction by penta- and hexa-methonium salts has been associated with unmistakable clinical improvement as witnessed by the relief of dyspnea, pulmonary congestion, headache, papilloedema, and retinal exudates, in the course of treating 53 severe hypertensive patients (including 11 with malignant hypertension), with one death from cerebral hemorrhage.

Great blood-pressure reductions may be inadvisable in patients with much cerebral or coronary sclerosis. The selection of cases, and the decision on how much blood-pressure reduction should be effected, therefore requires care. For these and other reasons, treatment must be individualized and controlled by measurements of the blood pressure before administration of the drugs and during the trough of the blood-pressure fall which they induce.

Triethylene Melamine for Neoplastic Diseases

A new compound, with indications similar to those established for nitrogen mustard, but with certain advantages of its own, has been studied by D. A. Karnofsky and his associates (*Arch. Int. Med.* 87:477, 1951). The new drug, triethylene melamine (TEM), was administered intravenously in a dose of 2 to 3 mg. daily to patients with Hodgkin's disease, lymphosarcoma, and chronic lymphatic and myelogenous leukemia. The total dose for adults was 5 to 20 mg. Temporary improvement, similar to that effected by the nitrogen mustards, resulted. Triethylene melamine, in therapeutic doses, in contrast to the nitrogen mustards, rarely causes nausea, vomiting, or venous thrombosis at the site of injury. A limiting factor in therapy is that both triethylene melamine and methyl-*bis* (2-chloroethyl) amine are injurious to normal hemopoietic function. Careful regulation of the dosage is essential, so that prolonged or fatal depression of the bone marrow will be prevented. Triethylene melamine was also given orally to 58 patients with the above diseases and with mycosis fungocides. The course of treatment usually consisted of 20 to 40 mg., given in a three to five week period. This dosage varied greatly and was modified according to the diagnosis and the general condition and hematological state of the patient. Oral therapy produced no symptoms in 21 patients, slight nausea with vomiting in 33, and severe vomiting in two patients.

Anticoagulants in Frostbite

The value of anticoagulants in the treatment of acute frostbite is indicated in the report of F. V. Theis, W. R. O'Connor and F. J. Wahl (*J. A. M. A.* 146:992, 1951). Thus, 14 of the 30 patients with acute frostbite admitted to Cook County Hospital of Chicago during the winters of 1949 and 1950 were treated with these drugs. The results were most gratifying, as only one of the treated patients required local amputation of a finger. The duration of hospitalization has been appreciably reduced, and the patients returned to normal activities more quickly.

Anticoagulant therapy was instituted shortly after admission. Heparin sodium was given every three or four hours for maintenance of an elevated clotting time and until adequate effect with bishydroxycoumarin (Dicumarol) was produced. Other treatment is important and consists of combat of shock with blood and plasma infusions, thawing of the involved areas by exposure to room temperature only, cleansing and application of sterile dry or petrolatum gauze pressure dressings, and employment of antibiotics to combat infection. These clinicians feel that adequate anticoagulant therapy in the acute stage of frostbite is of great value in reduction of the incidence and extent of gangrene and the period of disability.

Improved Digitoxin Medication

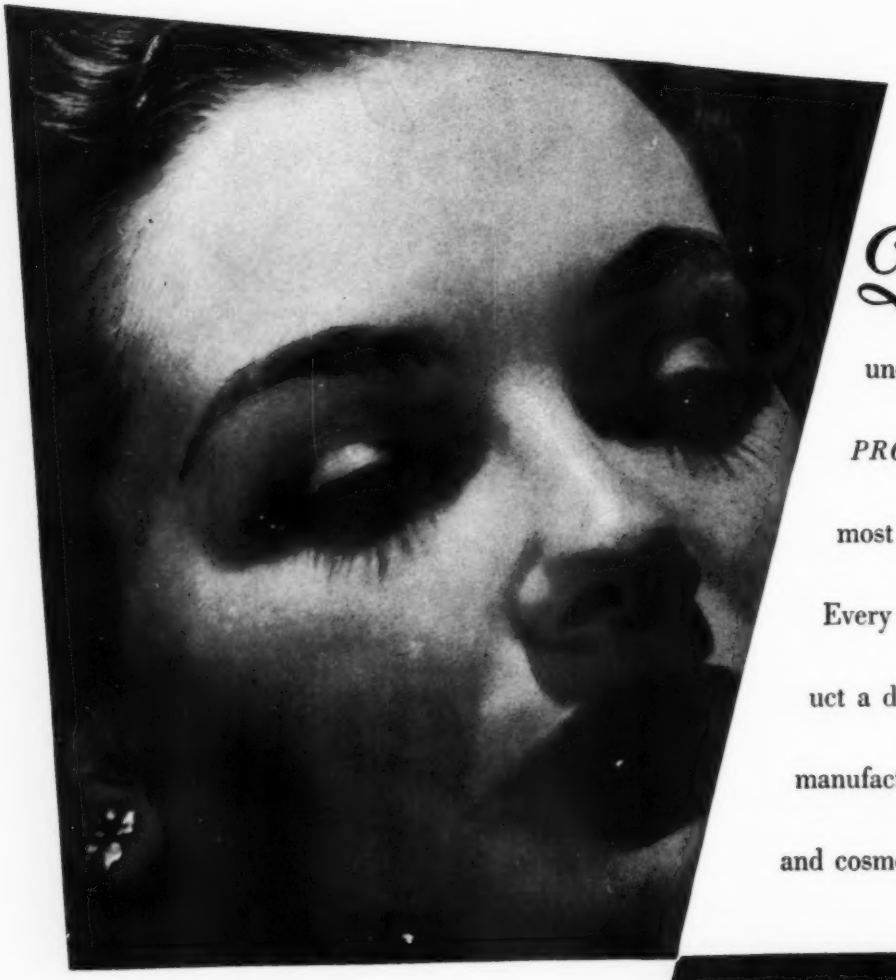
Improvements in the action of digitoxin, the active glycoside of digitalis, is indicated by F. L. Haley (*Med. Times* 79:480, 1951). He used a combination of the protective colloid, sodium carboxymethyl cellulose, with digitoxin, U. S. P. to obtain a more prolonged therapeutic effect plus a reduction in acute toxicity. He found that the colloid-protected digitoxin, called Foxalin, provides a safer, smoother and more sustained action than does the official product. Pharmacological tests on the cat's heart confirmed the greater safety of the combination. In a series of 27 cardiac patients treated with Foxalin, the following symptoms when present were cleared or improved in the indicated percentages: edema of ankles 93.7 per cent, shortness of breath 92.3 per cent, excessive fatigue 92.3 per cent, asthenia 91.7 per cent and nocturia 100 per cent. In no case did these symptoms become worse. Electrocardiographic studies in this series showed the expected digitalis therapeutic action. In no case was there any toxic arrhythmia. Such arrhythmias are frequently observed after use of unprotected digitoxin.

Prolonged Cortisone Therapy

The effects of prolonged uninterrupted cortisone therapy in rheumatoid arthritis is indicated in the report by E. W. Boland (*Brit. Med. J.* 2:191, 1951). In his study 60 patients with rheumatoid arthritis received cortisone uninterruptedly for six to 15 months. By using initial large suppressive amounts, then gradually reducing the dosage, and finally employing smaller maintenance doses, adequate degrees of rheumatic control were maintained in approximately two-thirds of the original 76 patients. The ability to maintain satisfactory improvement varied indirectly, in general, with the severity of the rheumatoid arthritis: very marked or marked antirheumatic response was upheld for long periods in 47 per cent of severe cases, 70 per cent of moderately severe cases, and 92 per cent of moderate and mild cases. The chief obstacle to better results in the severer cases was the intervention of adverse hormonal side-effects which developed frequently when large or relatively large maintenance doses were required to support satisfactory improvement. Unwanted signs of hormonal excess developed in 40 per cent of cases at some time during the course of treatment. Most of them were mild or transient and disappeared or lessened when the dose of cortisone was reduced. The principal objection to their development was that they necessitated a lowering of dosage, which in turn often resulted in clinical deterioration.

During prolonged cortisone therapy evidence of functional suppression of the adrenal cortices, as indicated by a decreased response of circulating eosinophils to exogenous ACTH, was present. The depression of cortical function was temporary, however.

It is Boland's opinion that as experience with cortisone broadens it becomes increasingly evident that there are distinct limitations, difficulties, and dangers in its use in the treatment of chronic diseases. At the present state of our knowledge it appears that cortisone may be employed as a powerful weapon in the management of many cases of rheumatoid arthritis, but it should not be considered as the treatment of choice for most cases, and not as a cure for any case.



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Industry's Books

Preparation of Organic Intermediates, by David Allen Shirley, Associate Professor of Chemistry, Tulane University of Louisiana, 328 pp., 1951, John Wiley & Sons, Inc., New York, $6.

Preparation of Organic Intermediates brings to the chemist's desk and laboratory specific preparative directions on more than 500 useful organic compounds. None of the compounds is duplicated in Organic Syntheses although the present work contains the same type of useful information and is an extension of the type of help that Organic Syntheses gives to the chemist. Each compound included in this book satisfies the following criteria: 1—It is not available commercially or is relatively expensive. 2—Directions for its preparation are not included in Organic Syntheses. 3—Its structure is simple and contains reactive functional groups that make it useful as an intermediate or else its preparation involves a generally useful type of organic reaction and the directions may be applied to preparing related compounds. Every starting material used is either available commercially at relatively low cost or else its preparation has been given in Organic Syntheses or in another place in the present work.

Medicinal Chemistry, (Chemistry, Biochemistry, Therapeutic and Pharmacological Action of Natural and Synthetic Drugs), by Alfred Burger, Associate Professor of Chemistry, University of Virginia, Volume I, 577 pp., Interscience Publishers, Inc., New York, $10.

Medicinal Chemistry is a borderline field between organic chemistry, physical chemistry, biochemistry, pharmacology, microbiology, and many phases of medicine. It is mainly concerned with the elucidation of the structure and the synthesis of compounds which can be used in medicine for the cure or the treatment of disease, with the understanding of the chemical and biological mechanisms by which the action of drugs can be explained and, finally, with the relation between chemical structure and biological activity. The present book is written as an advanced treatise on a professional level. Emphasis has been placed on chemical aspects. The author reviews structural analysis and syntheses of important medicinal chemicals, biological testing, and therapeutic usefulness as well as medicinal and veterinary drawbacks. While mainly designed for the chemist, biochemist, and pharmacologist in research and industry, it will acquaint the physician with the background and newer developments of drugs and give him an appreciation of the scientific work that has made his therapeutic tools possible. The text has been documented extensively. A comprehensive subject index which also lists the scientific and trade names of many natural and synthetic drugs will facilitate the use of the book as a reference work. Volume II is expected in September, 1951.

Soybeans and Soybean Products, In Two Volumes, Edited by Klare S. Markley, Volume I, 540 pp., Illus., $11., Volume II, 1145 pp., Illus., $11., Interscience Publishers, Inc., New York.

The soybean has had perhaps the most phenomenal history of any agricultural crop in the United States, if not in the world. Technological developments which have at times led, and at other times accompanied, the expansion of the soybean crop have been so rapid and far-reaching that it has been almost impossible to keep abreast of them or of the enormous literature to which they have given rise. For the present monograph the assistance of a group of experts was enlisted for preparation of individual chapters in specialized fields. This work, therefore, is far more comprehensive than similar books in this field. Technological processes are presented primarily from the viewpoint of present industrial practice in the United States, but the general treatment is world-wide in scope. Volume I—Contents: A. Production. 1. History of Soybean Production. 2. World Soybean Production in Trade. B. Structure and Composition. 3. Structure and Genetic Characteristics of the Soybean. 4. Chemical Composition of Soybean Seed. 5. Chemical Composition of Soybean Oil. 6. Chemical Characteristics of Soybean Oil. 7. Physical Properties of Soybean Oil. 8. Proteins and Other Nitrogenous Constituents. 9. Other Constituents of the Soybean. 10. Nutritive Factors in Soybean Products. C. Processing. 11. Grading and Evaluation of Soybeans and Derived Products. 12. Handling and Storage of Soybeans. 13. Biological Processes in Stored Soybeans. 14. Mechanical Processing of Soybeans. Volume II—C. Processing (cont.) 15. Solvent Extraction Processes. D. Utilization of Soybean Products. 16. Production and Utilization of Lecithin. 17. Processing of Edible Soybean Oil. 18. Nutritional Value of Soybeans and Soybean Products. 19. Edible Soybean Oil Products. 20. Soybean Oil By-Products. 21. Nonedible Soybean Oil Products. 22. Soybean Oil Meal for Livestock and Poultry. 23. Soybean Protein Food Products. 24. Soybean Protein Industrial Products. 25. Other Soybean Products.

"Open-Chain Ureide" Sedatives, an objective review, by F. G. Hobart, Ph.C., Joint author of "A Concise Pharmacology", 27 pp., Leonard Hill Limited, London, 3s 6d.

Whether the organic chemist has yet achieved the practical "ideal" in sedatives, only the future can tell, but realization of the outstanding merits of certain open-chain ureides, carries clinical medicine well ahead of barbiturate and bromide therapy. It is only during the past few years that sedatives of this group have begun to achieve recognition by prescribers of their importance as safe and satisfactory alternatives to barbiturate therapy for the majority of patients. Even today, their chemical relationship to other ureides, and details of their pharmacology and therapeutic indications, appear to be appreciated on a comparatively small scale, and it is this consideration which induced the author to offer this objective summary.

(*Continued on page 532*)

Perfumer's Shelf

Trace Components in Flavors

In his discussion on trace components in flavor formulations, J. V. W. de Vries (*Perf. & Essent. Oil Rec.* 42:85, 1951) states that trace constituents may be considered to be those additions used in very small quantities and bearing an odor which may have no direct resemblance to the fruit but, because of their great strength, change the mixture and give it a more natural note and life, emphasize other components present or strengthen the flavor as a whole. Most flavors will benefit very much from the addition of trace components and the improvement is much greater than the added amount would lead one to suppose.

The knowledge and intuition which trace elements will produce in a desired effect, or which trace elements will heighten the impression of other components present, is of great importance to the flavor compounder and may be decisive for the quality of his compositions. Fixed rules do not exist for the incorporation of a definite trace in a certain flavor and therefore experience and intuition are of a very great value.

After discussing some of the factors involved and considering a number of specific flavors to which certain trace components may be added, de Vries discusses some trace constituents which may be used for a greater variety of flavors, and thus have a more general application. To this class belong the higher aliphatic aldehydes, which are used in many different flavors. Some examples are for instance *n*.heptylaldehyde which may be used to shade all kinds of nut flavors, as well as almond, whisky and cherry compositions. *n*.Octylaldehyde is chiefly used for lemon and orange flavors, but is also of importance for apricot and cherry compositions, as its slightly herbal odor is of value. Methylhexylacetaldehyde is valuable for melon, pear and prune flavors, to which it gives a fine fruity top note. Dodecylic aldehyde may be used for honey and wax compositions, as well as lime, raspberry and peach.

Of the unsaturated aliphatic aldehydes *alpha beta* hexylenealdehyde of importance for many flavors, but great care is necessary to prevent it dominating the flavor. In small quantities, however, it is a very good constituent of prune, apple, apricot and pear flavors.

Dimethylbenzylcarbinylacetate is a compound which has a fresh fruity and yet somewhat green odor. It is of importance in the compounding of honey, rhubarb gherkin and pear flavors. It may be used in a higher percentage than those of the usual trace components. Its corresponding alcohol, dimethylbenzylcarbinol, imparts a greater natural note to caramel and coffee flavors.

Patchouli oil is of importance as a trace component in walnut flavors, as well as pistachio, malt and maple. The results obtained in flavors with patchouli oil depend very much on the quality of the oil which is used. Medium quality, or freshly distilled oils lack the fine fragrance of first class oils which have aged for a long time.

The esters of furylacrylic acid may be used as trace constituents in many flavors. The ethyl ester for instance in fig, date, caramel and cognac compositions, and the amyl ester for gin, whisky, almond and grape flavors.

De Vries notes that although lovage oil is but little used, it has interesting possibilities in flavor compounding. It has a penetrating odor and has to be used in very small quantities, but is then of value in black walnut and other nut flavors, in curacao and the French type of liqueurs.

He also cites the importances of the large ring ketones for general use in flavors. Exaltolid is especially valuable. After some maturing it rounds off a flavor in a most satisfactory way. It can be used, for example, in citrus and strawberry formulations. For special purposes ambrettolid and civettone can be used, the former, for instance, in apple and pear flavors, the latter in raspberry compositions.

Oil from Dipterocarpus Indicus Oleo-Resin

G. S. Krishna Rao, S. Dev and P. C. Guha (*Science & Culture* 16:74, 1950) report that the hydrocarbon, β-caryophylline, was found in the essential oil from *Dipterocarpus indicus*. The oleo-resin was steam distilled to obtain a colorless oil, then after repeated fractionations a main fraction boiling at 146-148°C., was obtained. The presence of β-caryophylline in this fraction was confirmed by the preparations of its blue nitrosite, iodonitrosite, nitrosochloride, and other derivatives. The essential oil is a mixture of α- and β-caryophyllines. A new higher melting adduct was obtained from the oil by condensation with maleic anhydride.

Ciste-Labdanum Oil

In reporting on recent research on ciste-labdanum oil, L. Trabaud (*Soap, Perf. & Cosmetics* 24:449, 1951) reports that by extraction with volatile solvents (petroleum ether or benzene) concrete and absolute oils of labdanum are prepared. These have a high color and have a very tenacious odor of amber. By steam distillation, carried out in a double-bottomed still and fitted with a device to facilitate the cohobation of the water, the leaves and twigs and cistus labdanum yield an oil having the constants shown below.

Fresh Plant Oil	
Specific gravity	0.9446
Index of refraction	1.4911
Specific rotation	—8° 20′
Acid value	13.0
Ester value	36.5

Dried Plant Oil	
Specific gravity	0.9496
Index of refraction	1.4897
Specific rotation	1°
Acid value	11.6
Ester value	40.8

The oil obtained from fresh plants and that obtained from dried plants were both yellow liquids with a resinous odor suggestive of mint, amber and incense. The taste was at first bitter and then sweet. On the tongue, they gave the impression of cloves. Some platelets separated in alcoholic solution.

In summarizing the data with respect to chemical composition, it is noted that there was present in oil of ciste-labdanum from the Estérel some free fatty acids, some combined fatty acids (acetic, formic and higher fatty acids), phenols (eugenol), aldehydes (benzaldehyde),

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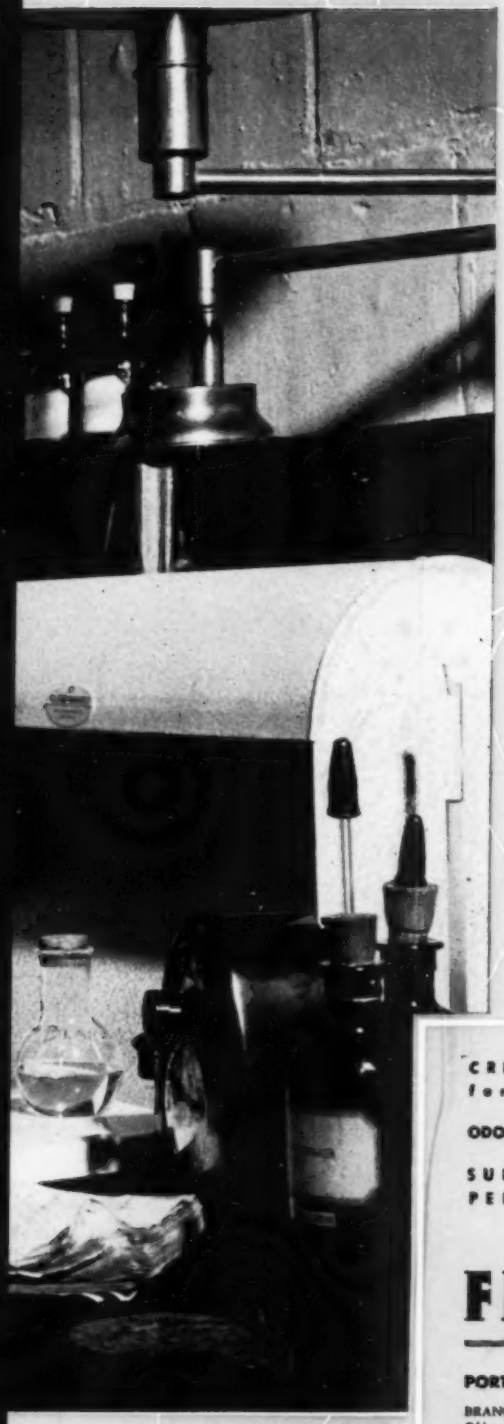

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ketones (acetophenone, trimethyl-cyclohexanone), terpenic hydrocarbons with a pinene odor, and alcohols that have not so far been identified.

Oil from Lavungo Scandens Berries

K. K. Baslas and S. S. Deshapande (*J. Indian Chem. Soc.* 27:379, 1950) report that steam distillation of the berries of *Lavungo Scandens* gave 2.5 per cent of the essential oil, which was separated by distillation into three fractions. The oil was found to consist of 56 per cent cineol, 30 per cent cinnamyl cinnamate, and 9 per cent methyl cinnamate.

Synthesis of Irone Odor

According to a report in the *Manufacturing Chemist* (22:192, 1951), British patent 643,353, granted to Firmenich et al., covers a process for preparing a new product smelling of irone by subjecting *n*-methylpseudoionone to a ring-closing by treatment with an acidic reagent so as to obtain a mixture containing 6-methyl-α-ionone and 6-methyl-β-ionone. Of these, the α compound is new, since it has never been prepared hitherto. The two isomers, α and β, are separated from each other by means of a crystallizable derivative formed with the help of a carbonyl group, and according to a preferred embodiment, at least one of the stereoisomers of the 6-methyl-α-ionone is separated from the obtained mixture by fractional crystallization of the phenylsemicarbazones prepared with it; alternatively, the 6-methyl-β-ionone can be separated from the mixture by fractional distillation.

A new product smelling of irone is obtained when 6-methyl-α-ionone and 6-methyl-β-ionone are mixed together so as to contain 65 to 95 parts by weight of isomers of the type 6-methyl-α-ionone for 35 to 5 parts by weight of isomers of the type 6-methyl-β-ionone.

One method of preparing this irone-smelling product is as follows: 1 kg. *n*-methylpseudoionone, cooled to —10°C., is introduced into 3.5 kg. sulfuric acid (98 per cent) and mixed with 1.5 kg. acetic acid, also cooled to —10°C., so that the temperature does not rise too quickly to 20° to 25°C. After having kept this temperature for 20 minutes, the mixture is poured on to ice, a good stirring being kept up throughout the process. After the usual treatment for separating the reaction products, 720 Gm. of a mixture of 6-methylionones α and β are obtained. By fractional distillation under 0.1 mm. in a high-efficiency fractionating column with a total-reflux column head, about 50 per cent of first runnings distilling between 70° and 75°C. are drawn off. These first runnings are composed of the mixture of the two isomers α and β. The next fraction, which distils between 75° and 78°C., is composed almost entirely of 6-methyl-β-ionone.

Sardinian Rosemary Oil

In a discussion of essential oils from Sardinian plants, A. Ratter and F. Tuveri (*Rend. seminar. facolta sci. univ. Cagliari* 16:201, through *Chem. Abstr.* 45:400, 1951) report that steam-distilled oil was obtained from rosemary plants of Suelo in a yield of 800 Gm. per 100 kg. of plant parts. A sample of this oil showed the following characteristics.

Specific gravity	**0.9118**
Index of refraction	**1.471**
Specific rotation	**21.5**
Viscosity (Ostwald)	**3.56**

The oil showed a 5 per cent solubility in ethyl alcohol at 27°C.

The chemical composition of the oil was as follows:

Borneol, free	**18.84 per cent**
Bornyl acetate	**17.18 " "**
Camphor	**9.83 " "**
Cineole	**9.20 " "**
Terpenes	**44.00 " "**

Ascaridol in Chenopodium Oil

The method of determining ascaridol in Chenopodium is given by G. Sanna and A. Marchi (*Boll. chim. farm.* 89:447, 1950) is as follows: Dissolve 0.5 Gm. of the oil in 20 cc. of 90 per cent ethyl alcohol, add a solution of 0.5 Gm. of mercuric chloride in 5 cc. 90 per cent ethyl alcohol, filter after 48 hours' standing in the dark, wash the precipitate with 90 per cent alcohol, dry in the open air in the dark, and weigh. The weight multiplied by 76 gives the quantity of ascaridol in 100 Gm. of chenopodium oil.

Essence of Dictamnus Hispanicus

The physicochemical characteristics are given by J. Sistare (*Anales real soc. espan. fis. y quim.* 47B:171, 1951) of the essence obtained from the fresh flowering plant, *Dictamnus Hispanicus*. This essence amounted to approximately 3 per cent of the dry weight and it is soluble in most of the usual solvents. It does not solidify, even at —15°C. in a salt and ice bath. It does not react with either semicarbazone or dinitrophenylhydrazine. Fractional distillation showed that the fundamental constituents are estragol (70 per cent), distilling at 105 to 106°, and dilimonene and dipentine (16 per cent), distilling at 68 to 80°C.

dl-Borneol in Brazilian Peppermint Oil

In a report on the chemical composition of the peppermint oil of Brazil (*Mentha arvensis*), J. Garnero, L. Benezet and G. Igolen (*Bull. soc. chim. France*, 1951, p. 114) state that the residual oil from the preparation of menthol from 5,000 kg. of this oil was treated with boric acid to separate the alcoholic constituents. After regeneration, the mixture of alcohols was fractionated. The fractions having a camphor odor were mixed (6.63 kg.) and fractionated; 140 Gm. of borneol being obtained. The melting point of 270 to 8°C. and the low optical rotation of —2.5° showed it to be almost entirely racemic. Its identity was established by preparing the phenylurethan, melting at 140 to 1°C., the 1-naphthylurethan, with a melting point of 138°, the 3, 5-dinitrobenzoate, melting at 154.5°, and the phthalate, melting at 165 to 166°C. It was also oxidized to camphor.

Infrared Examination of Terpenoids

The results of infrared examination of terpenoid substances is reported by M. F. Carroll, R. G. Mason, H. W. Thompson and R. C. S. Wood (*J. Chem. Soc.* 1950, p. 3457). Spectra in the region 700-1700 cm.$^{-1}$ were obtained for products from Java citronella oil, citronellol from cintronellal, geraniol from Nindi oil, geraniol from Bois de Rose oil, linalool from Bois de Rose oil, isopulegol, and cintronellal from hydroxycitronellal. The purified samples of geraniol, citronellal and citronellol, obtained from natural oils of different kinds, are similar as regards the olefinic end group, which is the isopropylidene structure. Preparation of compounds such as citronellal by dehydration of the corresponding hydroxy compound may yield almost entirely the isopropenyl form. The material in natural Java oil responsible for the isopropenyl end groups can be separated. It is not an alcohol. In the opinion of these workers, much of the evidence on the homogeneity of this class of compounds must be regarded as misleading, presumably because of rearrangement or other chemical processes which take place during the determination.

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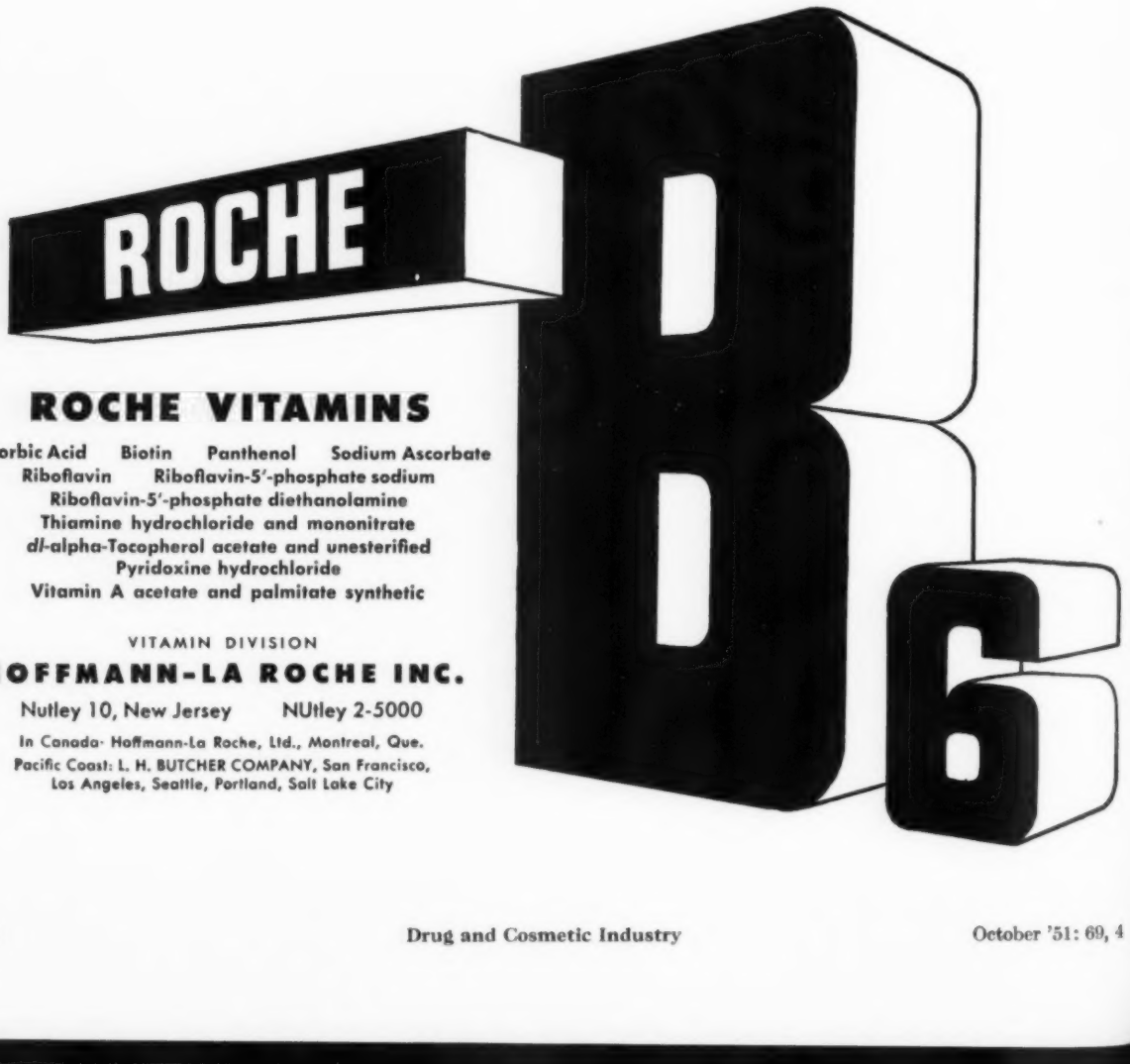

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Abreast Of The Markets

Markets Exceptionally Quiet in September; Activity Expected As Winter Approaches; Cod Liver Oil Steady

The month of September was very inactive as far as most of the markets were concerned—many essential oils fell off in price, most of the botanicals remained the same, with but a few separate changes noted. The chemical field was unusually quiet for this time of the year, when there is usually a great show of strength in those items used just prior to, and during, the winter months.

In every case the buying immediately following Labor Day was very disappointing to the industry, and the lack of activity was in general attributed to the carry-over stocks in the possession of consumers—stocks still remaining from the hectic months of 1950 when the Korean War threatened to become a third World War and when buyers stepped into the market to buy as much and as heavily as the available supply would allow.

There is very little activity in menthol at the present time, for example, and this is an item which ordinarily reflects considerable activity toward the end of September and the first few weeks of October. Quicksilver has gone ahead again, advancing from $198 to $218, a development which has greatly encouraged the opening of domestic mines. Alcohol, another important chemical, has been holding its own pricewise, although the demand has been stepped up considerably. Dealers report there is ample material on hand to satisfy all normal customers, on the one hand, and the government, on the other hand, is beginning operation of two new synthetic rubber plants, which will consume considerably more alcohol.

While the essential oils were relatively quiet in September, there are signs that their activity will step up by the end of this month, and certainly by November. At this time, new crops will have arrived in many items, such as wormseed oil, and peppermint and spearmint oils. One essential oil dealer has released a report on essentials oils in which he says that "peppermint and spearmint oil crops will be normal in size this year, and that, with demand ranging fairly steady throughout the year, it would seem that prices in the production areas may hold in the beginning with some possibility of weakening later.

Additional oils which have been getting firmer in recent months include such items as bergamot, eucalyptus, rosemary, and citronella, to mention a few. In the case of anise and cassia oils, the source of supply, China, has been cut off from the United States for several months, but as yet, the price has remained about the same. There has been no indication of a shortage developing in this country, and dealers report, in fact, that there has not been any increased interest in the items as yet. Since the heavy consuming season for these two oils is approaching rapidly, a strengthening of prices is expected at any time.

Changes may take place in the botanical market in the next few months, as a result of the September order of the OPS declaring that all domestic botanicals should be free of controls and that all imported botanicals should remain under these controls. Independent of this declaration, several domestic botanicals declined during the latter part of September because of the arrival of new crops and because of a decrease in buying. These reduced prices were not quoted by all botanical houses, however. It will take several months to determine how the market will be affected, half controlled, half free.

Cod Liver Oil Unchanged

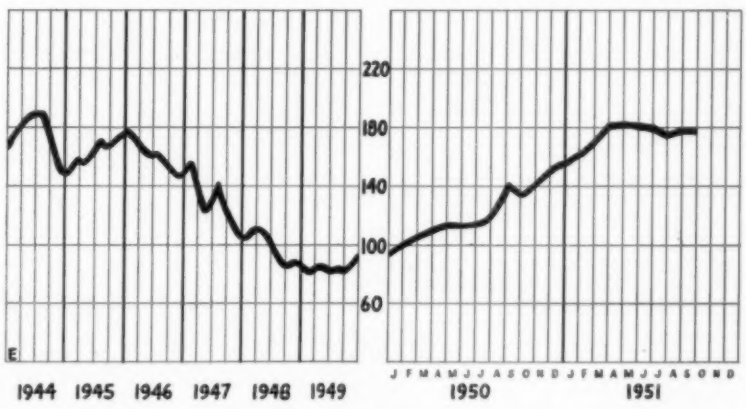
The price of cod liver oil remained at $1.90 a pound last month, with ample stocks to go around for the present time. Increased buying is anticipated by the end of this month and the rest of this year, when it is believed the supply situation will become tighter, but still remain sufficient. European countries have been buying more cod liver oil than usual this year, but this factor apparently has not had much of an effect on the over-all supply.

The 1951 cod-fishing season in Norway ended on June 30 of this year, and, according to reports, catches made after that date have been slight. Production of steam-refined cod liver oil up to June 23 totaled 3,173,561 U. S. gallons, or 1,166,808 gallons more than the 2,006,753 gallon output through June of last year.

The yearly production of steam refined cod liver oil from January through June 24 in 1949 was 1,544,024 gallons, as compared with 1,467,624 in 1948, and 2,948,853 in 1947.

(*Continued on page 530*)

15 Essential Oils—Weighted Price Index. 1926 = 100.



The essential oils index went down very slightly from 177.5 to 177.3. Bergamot oil was higher; citronella, lime, and sandalwood oils were lower.

Prices quoted in this section were current on the first of this month.

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Alcohol Supply Declared Sufficient for Present; Synthetic Rubber Production Has Been Increased; Mercury Over $200, Menthol Quiet

With the purchase of large amounts of alcohol and the operation of two more synthetic rubber plants, important users of alcohol, the over-all situation appears on the firm side. Dealers report they have ample material to go around, provided they sell the alcohol to their regular customers only. Production of the item has been stepped up, and imports have been steadily entering the United States from Europe, greatly adding to the supply on hand. It has been said that if there had been no imports, or if they had been on a smaller scale, there quite definitely would not be enough alcohol today for both the Country's rubber program and for the cosmetic industry too.

The alcohol supply picture has also been aided by government curtailment of the automobile output, reduced operations among furniture manufacturers, and a business decline in the lacquer industry, all large users of industrial alcohol. Now that summer has come and gone, and the accompanying business slump has ended, alcohol producers expect a greater demand, and suggest that it may soon be necessary to distribute the alcohol by allotment.

There was no price change last month in denatured No. 1 Special alcohol which was still being quoted from 90c to 93c.

Stressing the magnitude of recent imports, the United States received a total of 12,990,425 proof gallons in July from foreign sources, as compared with about two million proof gallons during the same month in 1950, according to the Alcohol Tax Unity of the Bureau of Internal Revenue, Treasury Department.

The following data was released last month on the supply, production, withdrawals, and stocks of ethyl, completely denatured and specially denatured alcohol during the month of July 1951, in comparison with July, 1950.

Production

	Proof gallons	
	1951	1950
Ethyl	35,563,476	31,726,555
*Completely denatured	230,146	59,910
*Specially denatured	23,118,208	18,658,977

Withdrawals

	Wine gallons	
	1951	1950
†Ethyl, tax paid	2,257,826	4,985,530
tax free	44,744,489	33,243,691
*Completely denatured	219,303	69,255
*Specially denatured	22,161,920	18,135272.

Stocks

	Gallons	
	1951	1950
†Ethyl	101,244,213	21,830,452
*Completely denatured	56,854	71,323
*Specially denatured	9,705,245	2,539,323

*Wine gallons. †Proof gallons.

Quicksilver Up Again

The quicksilver market reversed itself last month by advancing to as much as $218 per flask. This in itself encouraged domestic production of the metal, but all signs pointed to an even stronger market in the future. Reason for the increased price of the metal was that the main sources of supply were higher. Spain was quoting the material at $223 a flask, while that metal which has been coming into this country has mostly been resale material from soft currency countries.

Carnauba Wax Quiet

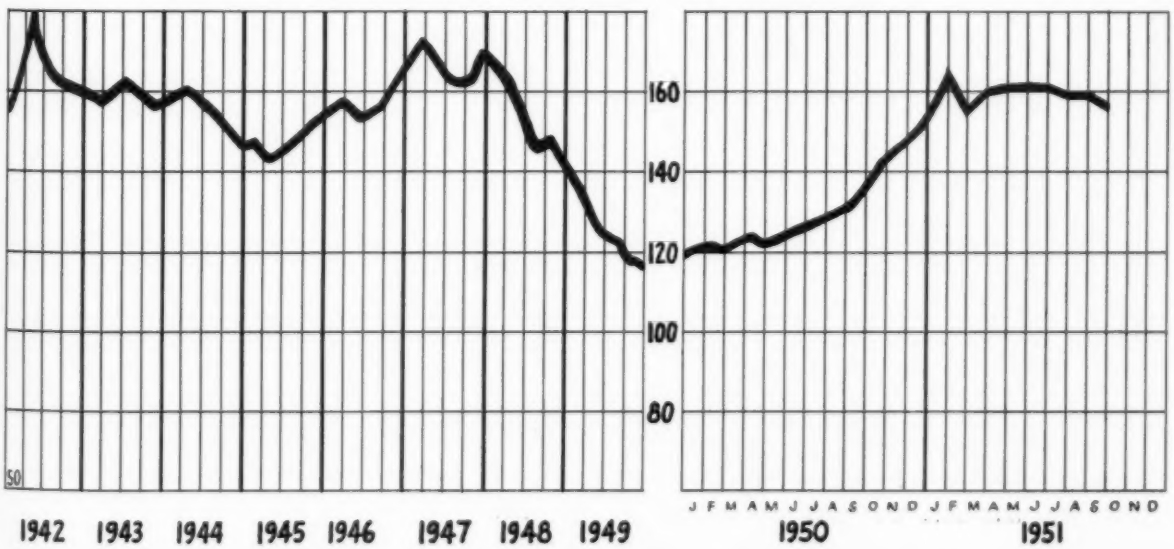
With the new crop material of carnauba wax still not available, prices at the origin last month were quite firm, while on spot they dropped to $1.11. There was considerable guessing last month about the expected size of the next crop of wax, but until it arrives on the market, the entire situation will probably remain very much on the tight side.

Menthol Very Quiet

Menthol was unusually quiet last month, much more so than had been expected. There was very little buying interest, with absolutely no material available from China, of course, and not much activity in Brazil. Prices in effect at that time ranged from $10.25 a pound for Brazilian material to $10.75 for Chinese menthol. Japan did have some menthol on hand but was asking far too high a price for it to be of interest in this country.

The market is expected to become more active next month, however, as winter approaches, and when the new crop is ready in Brazil. It is much too early yet for offers on this material. This idle period is probably the result of

50 Raw Materials—Weighted Price Index. 1926 = 100.



The price index of fifty commodities for September declined from 159.0 to 155.8.

September Price Changes

UP	DOWN	
Benzoin Gum, Siam 75c	Apricot Kernel Oil 6c	Gentian Root 2c
Bergamot Oil $1.75	Balsam Copaiba Para 25c	Lavender Spike Oil 45c
Ipecac Root 25c	Balsam Peru 65c	Lime Oil, Distilled 25c
Mercury $20	Balsam Tolu 25c	Expressed 50c
Origanum Oil $1	Bay Oil 35c	Mastic Gum 25c
Spearmint Oil 40c	Caraway Oil 50c	Menthol 20c
Vanilla Beans, Bourbon 25c	Carnauba Wax, North Country 3 5c	Pennyroyal Oil 50c
Vanillin 25c	Cedar Leaf Oil 50c	Petit Grain Oil, S. A. 15c
Wormseed, American 3c	Citronella Oil, Ceylon 5c	Saffron Valencia $4.50
	Cocoa Butter 4½c	Safrol 35c
	Dill Oil 10c	Sandalwood Oil 75c
		Spermaceti 4c
		Tragacanth Gum 1 35c

the excessive buying which took place last year, and as soon as the stocks have been depleted and consumers need replacements, the activity will begin.

Balsam Replacements Easier

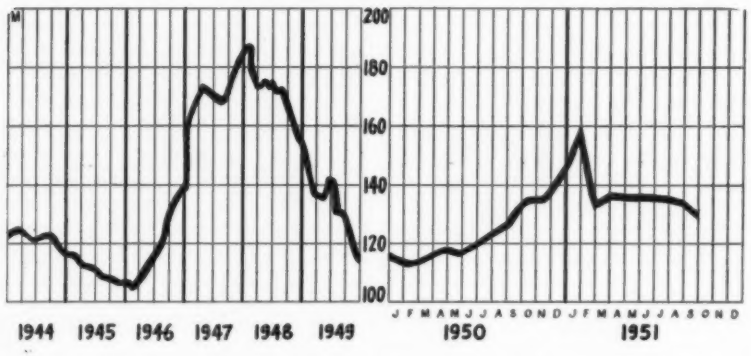
Balsam Tolu went down 25c in September to $6.25, a drop which represented more favorable replacement costs from the origin. Now that the demand from European countries has subsided considerably, exporters in South America seem to be more anxious to sell to the American market.

Cod Liver Oil Unchanged

(*Continued from page 527*)

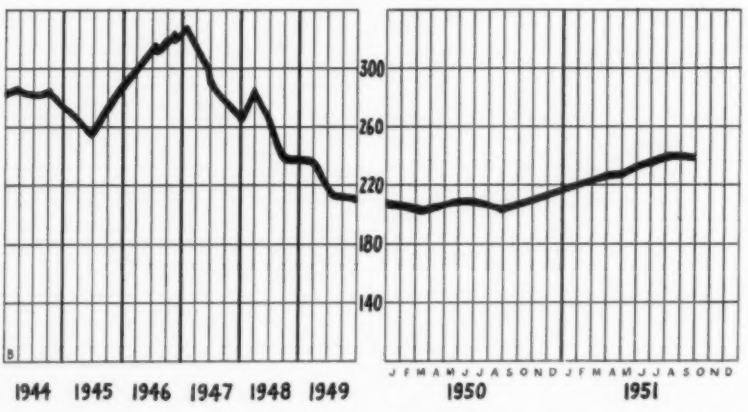
The United States demand averages about 50 per cent of the prewar consumption, as a result of increased production, imports from other sources, and the use of synthetic vitamins. Norway's exports of steamed medicinal cod-liver oil from January 1 to April 30 of this year totaled 531,531 U. S. gallons valued at $837,497 in U. S. currency. The five leading importers were the United States, 153,496 gallons; Netherlands, 75,322 gallons; United Kingdom, 33,381 gallons; Denmark, 31,384 gallons; and Indonesia, 19,686 gallons.

15 Medicinal Chemicals—Weighted Price Index. 1926 = 100.



The medicinal chemicals index dropped from 133.6 to 128.3. Mercury was up and menthol, down.

15 Botanicals—Weighted Price Index. 1926=100.



The botanicals index dipped slightly from 239.8 to 239.5. Ipecac root was higher; balsam tolu and gentian root were lower.

Vanilla Beans Higher

Bourbon vanilla beans advanced last month for the first time in quite a while. The new price was $3.25 a pound, a jump of 25c. The Mexican cuts ranged from $4.50 to $4.75, and the Mexican whole beans, from $5.75 to $6.50.

Cocoa Butter Down 4c

The expected demand in cocoa butter, which usually appears at this time of the year, did not occur last month, and the price of the item fell 4c down to 62c a pound. While there was ample material on hand, consumers appeared to be waiting for a further reduction in the price before entering the market.

Wormseed Oil Unchanged

Spot supplies of wormseed oil remained on the scarce side, and the price stayed between $9 and $9.25 last month. The new crop had not arrived yet, and it was not possible to estimate what effect new material would have on prices at that time. Spokesmen in the trade indicated, however, that there would probably be a let-up in the tight nature of the commodity when replacements arrived.

Orange Oil Demand Relaxed

The demand for orange oil fell off last month as summer drew to a close, and prices for the domestic oil remained in the range between $2.50 and $2.75. There was very little interest for the more expensive Italian oil and for the West Indian oil which was still being quoted from $2.75 to $3.25 a pound. Dealers reported that it was becoming a little easier to fill consumer orders than it had been during the middle of the summer.

One major dealer reports it is in a position to book contracts immediately for delivery over six months, but states that future supplies are still limited.

Citrus Losses in Brazil

Fruit growers in Rio de Janeiro, Brazil have suffered heavy losses from infestations of the Mediterranean and West Indies fruit fly, according to *Foreign Commerce Weekly*. By 1948, when the export market again became attractive, losses were of great concern, and the Ministry of Agriculture made an appropriation to be used in combatting the fruit fly. The fund was not used until December, 1950, when small-scale

efforts were made to spread dust containing 12 per cent benzene hexachloride by airplane.

The ministry appropriated 2,000,000 cruzeiros ($100,000) in 1951 for extensive dusting operations over the entire Rio de Janeiro citrus region. If the program proves successful, the Ministry plans to buy two additional helicopters of larger capacity for work in other citrus areas, probably in Sao Paulo.

Peppermint Yield Reported Good

No offers had been made by the latter part of September on new-crop peppermint oil, but dealers found, in answer to inquiries, that shippers were more than ready to do business, suggesting that this year's crop is on the favorable side.

Spearmint Oil Higher

Because of a small carryover of spearmint oil, and because the new crop had not arrived on the market yet, the spot price advanced to $5.90 last month on the inside price, with many offers near the upper range of $6.85. Dealers were apparently delaying any purchases until they could see which way the market would turn. Production of the oil was reported to be confined to the Mid-western states, since one producing area suffered considerable damage as a result of flash floods.

Cedarleaf Oil Falls Temporarily

Although cedarleaf oil fell in price last month from $3.25 to $2.75, it was the consensus of the industry that this reduction would be short-lived, in view of the strengthening trend in Canada. Distillers are said to have diverted their operations to other items, displaying little interest in this oil. As soon as this reduced output becomes effective, according to some sources, the price of the oil is expected to rise quite steeply.

Vanillin Higher Last Month

The price of vanillin advanced 25c in September from $3.00 a pound to $3.25, and ethyl vanillin went up to $7.30 from the former price of $6.75. The cause for the increase was said to be merely the higher production costs.

Citronella Oil, Guatemala

The volume of citronella oil expected in 1951 from Guatemala will be five times that of 1947, according to a U. S. Government bulletin, and lemongrass oil output may reach three times the 1947 figure. The forecast for 1951 citronella oil production is 1,500,000 pounds, a figure which may be exceeded if weather conditions and foreign demand are favorable during the remainder of the year. Production of citronella oil during the past four years has been 251,095 pounds in 1947; 648,472 in 1948; 826,808 in 1949; and 1,103,171 pounds in 1950. By the end of 1951 the number of growers of essential-oil-bearing plants may be greater than 100 if conditions are favorable. This is compared with a total of 60 planters in 1950 and 31 in 1947. The average yield per acre of citronella oil was about 140 pounds in 1950.

Lemongrass oil production in Guatemala in 1951 is forecast at 300,000 pounds, compared with 129,977 pounds in 1947; 142,353 in 1948; 136,989 in 1949; and 177,285 pounds in 1950. The current cultivation of lemongrass covers about 2,750 acres. In 1950 the average acre yield of lemongrass oil was 110 pounds.

Citronella Oil Down

The Ceylon citronella oil was reduced 5c last month to the range between $1.80 and $2.00 on spot. Although prices at the origin were very attractive from an importer's point of view, almost no replacement buying was taking place because of large stocks already in this country.

Cassia Oil Via Europe

There was no change in the cassia oil market last month as far as price was concerned, but there were reports to the effect that offers were being received from Europe, which probably consisted of Chinese material which had been transshipped to the continent. Samples of the cassia which arrived in the United States were said to be the natural grade which had not been redistilled.

Anise Oil Remains Inactive

In spite of the absence of any anise oil from China, the price of the item remained at $1.90 last month, with some reports of $1.70 from some dealers. There were apparently large stocks left over from last year yet on hand. Another factor was the easy availability of anethol, which is often normally resorted to when the oil prices get out of hand. When the real consuming season of anise oil comes, some sources believe the material will become very tight.

Lime Oil Down 50c

Several dealers reduced the price of expressed lime oil to $7.75 last month, and one was quoting the distilled material at $8.25. There appeared to be a let-up in the market, as the producing season approached.

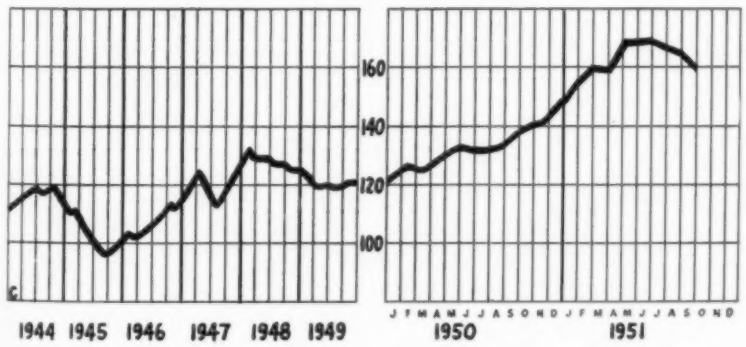
Pennyroyal Oil Down 50c

The price of pennyroyal dropped 50c in September to $4.50 on the inside price, and $4.75 at the upper limit. The factor behind the decline was a favorable new crop in Spain. Spot stocks were plentiful, and dealers had no trouble at all in filling orders.

Bergamot Oil Still Scarce

Bergamot oil continued to present a problem to the market, as stocks in this country have diminished to a very low amount, there having been no shipments here from Italy since the month of April. Prices were still being quoted for the oil ranging from $11.50 to $12.50, and even at these figures, dealers were not over-anxious to sell the material. The artificial oil, quoted in the range from $3.35 to $5.75, and displaying a great deal of stability, was readily available, and helped improve the bergamot problem greatly.

25 Cosmetic Raw Materials—Unweighted Price Index. 1926 = 100.



The cosmetic raw materials index went down from 164.8 to 159.8. Balsam copaiba, balsam peru, balsam tolu, menthol, spermaceti, and tragacanth gum were lower.

Industry's Books

(*Continued from page 523*)

The Pharmacologic Principles of Medical Practice, by John C. Krantz, Jr., Professor of Pharmacology, and C. Jelleff Carr, Associate Professor of Pharmacology, School of Medicine, University of Maryland, Second Ed., 116 pp., The Williams & Wilkins Co., Baltimore, $10.

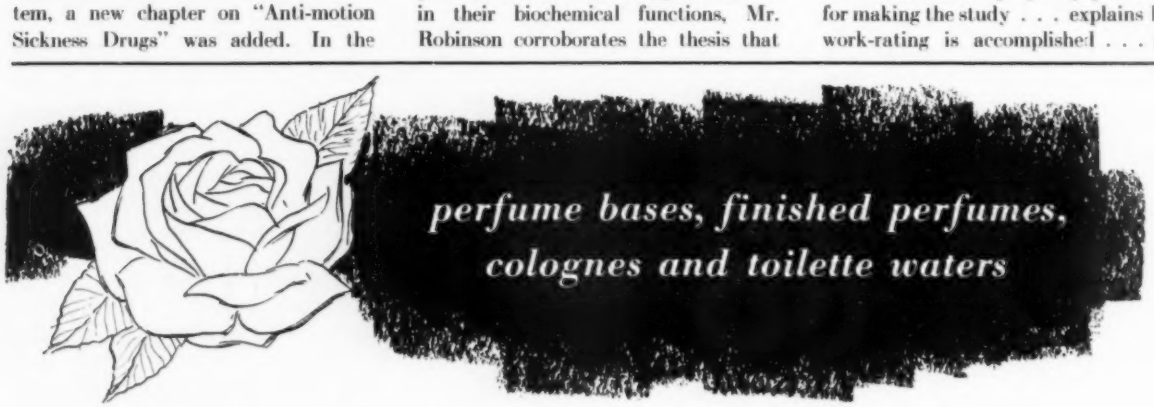
The central purpose of the second edition of this treatise is identical with that of the first edition, namely, to present the pharmacodynamic and pharmacotherapeutic actions of drugs as they are used in the treatment and cure of disease. Extensive revisions were necessary in nearly all of the chapters of the text. The chapters on penicillin and streptomycin were condensed to a chapter on the antibiotics, and in this, aureomycin, chloramphenicol and Terramycin were added, in addition to other antibiotics. Two new chapters, one on "The Chemotherapy of Tuberculosis" and another on "The Chemotherapy of Rickettsial Diseases," were included. Under the section on depressants to the central nervous system, a new chapter on "Anti-motion Sickness Drugs" was added. In the section on metabolism a chapter on the "Treatment of the Arthritides; the Adrenal Corticotropic Hormone and Cortisone" were included. The text was brought abreast with the additions and deletions in the Fourteenth Revision of the United States Pharmacopoeia, the Ninth Edition of the National Formulary, and New and Nonofficial Remedies, 1950. Many new drugs are discussed which are currently being investigated clinically.

The Vitamin B *Complex*, by F. A. Robinson, M. Sc. Tech. (Manchester), LL.B. (London), F. R. I. C., 688 pp., John Wiley & Sons Inc., New York, $9.

This first critcal review of the vitamin B complex—resulting from an examination of all the published literature on the subject, and the subsequent selection and re-arrangement of the most important facts—offers an evaluation of the significance of each vitamin in itself and in relation to each other. Stressing the strong family likeness of the members of the complex; the resemblance of the separate vitamins to one another in their biological effects on animals, plants, insects and microorganisms, and in their biochemical functions, Mr. Robinson corroborates the thesis that the basic metabolic processes in which members of the vitamin B complex play a part are common to all living organisms . . . bacteria, insects, plants, animals and man. This work not only summarizes the most important facts in relation to each aspect of the complex, but it also gives extensive literature references for specialists in each field. For example, you will find: methods of assay for analysts; methods of synthesis for pharmaceutical manufacturers; nature of deficiencies in animals and man for agriculturists and clinicians; and nutrition of micro-organisms for microbiologists. The inclusion of these references as well as its completness make this book a "must" for all research workers in the field.

Time study Fundamentals for Foremen, by Phil Carroll, Professional Engineer, Second Ed., 209 pp., McGraw-Hill Book Co., Inc., New York, $3.

This manual tells the foreman in simple, straightforward language what he should know about timestudy. It puts across the basic principles of timestudy quickly—shows what improves ments timestudy actually accomplishe- . . . covers the step-by-step procedures for making the study . . . explains how work-rating is accomplished . . . and



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tells specifically how to set up improved working standards that pay off in more and better production. This Revised Second Edition has been brought up to date in line with latest thinking and advances in the field.

Pharmacology and Therapeutics, by Arthur Grollman, Ph.D., Professor of Pharmacology and Chairman of the Departments of Physiology and Pharmacology, The Southwestern Medical School of the University of Texas, 828 pp., 104 Illus., Lea & Febiger, Phila., $10.

This volume presents an up-to-date coverage of the subject. Although emphasis has been placed on the pharmacology of therapeutically important drugs, others of purely pharmacologic interest have not been neglected. For example, nicotine, muscarine, and strychnine are of little clinical usefulness but an understanding of their action is essential for any fundamental concept of the science of pharmacology. The purpose of the course in pharmacology is to acquaint the student with the scientific basis for the use of drugs in medicine; to do so, involves not only a consideration of the drugs commonly used in the clinic but also of the basic principles of the subject.

The more practical minded may object to any attention paid to such drugs as nicotine or strychnine. However, a text in pharmacology should not be a mere handbook of therapeutics but should serve as a foundation for the rational and scientific use of drugs, without losing sight of the ultimate objective which is the application of drug therapy in disease. An epitome of prescription writing has been added as an appendix.

Chronic Ulcerative Colitis (*Thrombo-Ulcerative Colitis*), by J. Arnold Bargen, M.D., Division of Medicine, Mayo Clinic, Rochester, Minn., 62 pp., Charles C. Thomas, Publisher, Springfield, Ill., $2.

Ulcerative Colitis presents itself to the practitioner of medicine in many forms, and the term "chronic ulcerative colitis" is used for a group of serious maladies which affect human beings. In this monograph the author is concerned primarily with a single form of the disease, in which ulceration of the colonic mucous membrane is the prime characteristic. Contents: I. Introduction—II. Pathologic Changes—III. Diagnosis — IV. Complications — V. Treatment—VI. Summary and Conclusions.

Diabetes Mellitus, Principles and Treatment, by Garfield G. Duncan, M.D., Clinical Professor of Medicine, Jefferson Medical College, Phila., 289 pp., Illus., W. B. Saunders Co., Phila., $5.75.

The objectives in preparing this volume have been twofold; first, to bring together and correlate up-to-date principles in the understanding of and in the treatment for diabetes mellitus and, second, to deal with this disease and its complications in such a manner that physicians and students may find herein a practicable and simplified outline of therapy. In fulfilling these objectives it has been necessary to cover quite a wide range, touching on nearly every specialty in Internal Medicine, as well as making excursions into the fields of Physiology, Physiological Chemistry, Pathology, Surgery, and Dietetics. The author has avoided as much as possible controversial issues and multiplicity of theories and practices, by giving most emphasis to known pathologic changes, to known phenomena influencing therapy and by outlining in considerable detail the practical measures, including the simplified Food Exchange System recently adopted by the American Diabetes Association, which have proved most useful.

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Adsorption, by C. L. Mantell, Ph. D., Consulting Chemical Engineer, 2nd Ed., 634 pp., McGraw-Hill Book Co., Inc., New York, $9.

Thoroughly revised in order to bring the book completely up to date, the second edition of this work is considerably enlarged and broadened in plan. The theoretical portion of the book is only slightly modified, however, since theories of adsorption have not advanced as rapidly as practice. Particular changes include:—extended treatment of the sections on:—fuller's earth, clays, and aluminium oxide base materials; ion exchangers; dehydration of air and gases (including a section on controlled humidity for preservation of materials)—new sections on:—fractionation of hydrocarbons by adsorptive processes; dehydration of liquids and the refining of waxes; the fractionation of ions with particular reference to the rare earths, fission products, and other work of the Plutonium Project; adsorbents in the refining of sugar and related substances; water treatment involving deodorization, removal of tastes, etc.; adsorbents in meidcine and pharmacy. Specifications, detailed testing procedures, etc., have been completely revised, rearranged, and rewritten with the cooperation of standardizing agencies and the producers and users of absorbent materials. 133 tables are included in the second edition as well as 263 illustrations.

Bacteriology, by Robert E. Buchanan, Research Professor, Emeritus Professor of Bacteriology, and Director of Iowa Agricultural Experiment Station, Iowa State College, and Estelle D. Buchanan, Formerly Assistant Professor of Botany, Iowa State College, Fifth Ed., 678 pp., The Macmillan Company, New York, $6.

Advances in the field of microbiology (or bacteriology) have been very great in recent years, increments to our knowledge have come in geometric progression. Revision of a basic text in the subject is therefore increasingly necessary. The rapid advances in physics, genetics, biology, taxonomy. immunology, physiology, biochemistry and in the applications of microbiology to every day life, to agriculture, home economics, medicine and public hygiene have all combined to make adequate and concise presentation of the elements of the science troublesome. That there is need for a text covering the general field of bacteriology without special emphasis upon the medical aspects of the science is evident from the wise use and acceptance of previous editions of this work. For the most part, the text has been rewritten, but without material change in the order of presentation and arrangement. Particular emphasis has been given to the modern developments in cellular morphology and physiology and to the many technologies in which microorganisms are significant.

Diabetes Insipidus, by Harry Blotner, M.D., Associate Visiting Physician, Beth Israel Hospital, Boston, Edited by Henry A. Christian, M.D., Hersey Professor of the Theory and Practice of Physic, Emeritus, Harvard University, Oxford University Press, New York, $4.50.

Diabetes insipidus is a disease about which the physician will find it well worth his while to be informed. Dr. Blotner has had long experience with it, having studied in detail many of its patients, following their course for years. The problem of the pathology and pathological physiology of diabetes insipidus is a fascinating one; this has been discussed in detail by Dr. Blotner. He has evaluated the numerous theories that have been advanced to explain the disturbances in body structure and function causative of diabetes insipidus,

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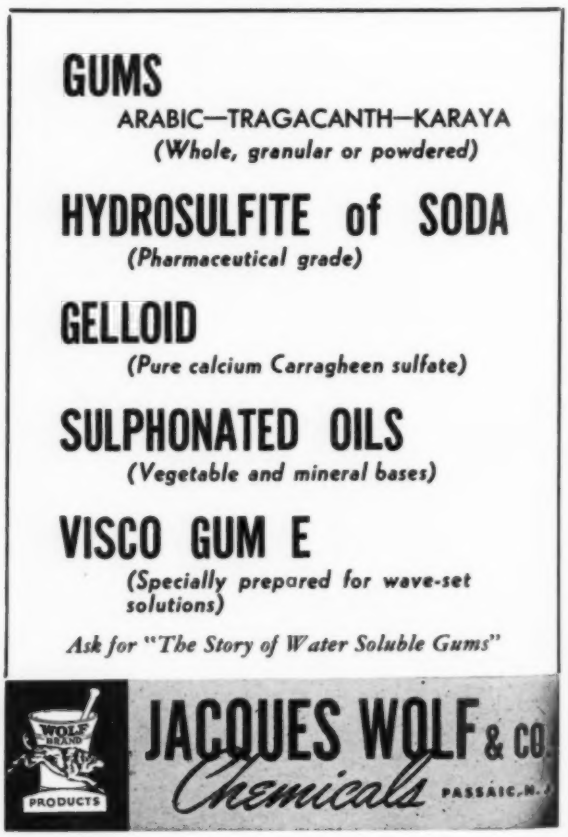

against the background of normal structure and function in the individual whose kidneys are working normally in their role of excreting water from the body. Physicians, physiologists, and pathologists will find this book interesting and profitable reading.

An Introduction to the Chemistry of the Silicones, by Eugene G. Rochow, Associate Professor of Chemistry, Harvard University, Second Ed., 213 pp., John Wiley & Sons, Inc., New York, $5.

In this second edition, chemists and engineers are introduced to the compounds and derivatives of one of the most versatile and interesting of all the elements: silicon. The marked industrial success of silicones, however, has made it necessary to expand this presentation; it now covers most of the recent theory and applications, and includes such new chapters as: The Carcon-Silicon Bond, Synthesis of Organosilicon Compounds, The Physical Chemistry of Silicones, greatly enlarged tables of Physical Properties of Organosilicon Compounds with references to the original work on each compound, and an extensive bibliography. The first few chapters of this work reviews the silanes and their derivatives. Later chapters emphasize the silicone polymers that have achieved commercial importance—giving methods for their preparation, their chemical and physical properties, and their possible uses. Here also are the processes available for large-scale production and a review of the various methods of analysis.

The Chemistry and Technology of Food and Food Products, Edited by Morris B. Jacobs, Ph.D., Adjunct Professor of Chemical Engineering, (Food, Flavor, and Dairy Technology), Polytechnic Institute of Brooklyn, Second Ed., (in three volumes), Vols. I, 832 pp., Interscience Publishers, Inc., New York, $12, Vols. II and III, $15 each.

The extensive expansion of almost every field in the theoretical and applied sciences has made it very difficult for a single individual to survey any given field adequately. This is indeed true of food chemistry and food technology. In presenting these volumes, 39 collaborators have prepared a unified, authoritative work. To cover the various phases of this work, food technologists, chemists, chemical engineers, biochemists, bacteriologists, sanitary engineers, public health officers, food inspectors, and entomologists are represented among the contributors. In this second edition the collaborators and the editor revised all the chapters in the light of the progress made in the intervening years. In addition new chapters covering topics such as instruments in the food plant, essential oils, the manufacture of chewing gum, and the use of enzymes in food production have been incorporated. The three volumes are divided into six parts. In the first volumes, the first part on fundamentals deals with the aspects of food chemistry which are common to all foods; in part two, unit operations and processes applicable to most foods are described; and part three deals with the maintenance of sanitary and quality control. The second volume which comprises part four concerns the descriptive aspects of particular food groups and includes some account of the history, statistics, definitions, standards, composition, and chemistry of these food groups. In the third volume, in part five, the principal methods of preserving food are delineated and part six is concerned with production methods for the principal foods. Throughout the entire book, the role played by adequate nutrition in modern life is stressed.

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Durham-Humphrey Compromise

(*Continued from page 459*)

unsound amendment, because its 'good faith' provision is a joker which can be effectively used to defeat a justified criminal prosecution; and such an amendment is on a par with that rejected by Congress, which makes a criminal prosecution under this Act depend on proof of an intent to violate it. It may be argued that section 303 (c) now contains an analagous 'good faith' exemption from criminal prosecution under this Act. But the answer is that it is also an unsound exemption originally forced into this Act, by pressure tactics; and that the FDA has given it a remedial construction."

This statement by Mr. Dunn was challenged at the hearing by Leslie D. Harrop, counsel for the ADMA, and by James F. Hoge, counsel for the Proprietary Association. Mr. Harrop stated that the proposed amendment was drafted in order to place the responsibility for the product on the manufacturer. He said that it does not relieve the pharmacist of his normal and reasonable responsibility, but only of the responsibility which rightfully belongs to the manufacturer.

In the face of the united drug industry action for the bill as the result of the compromise, the Food and Drug Administration was left as the sole body favoring the bill in the original form in which it was introduced in the House and as it was introduced in the Senate as S. 1186. However, the FDA was further out on a limb in support of this draft of the bill than if only the support of the N. A. R. D. has been taken away from it. For Federal Security Administrator Oscar R. Ewing, of whose Federal Security Administration the FDA is a part, told the Senate Committee that he would be willing to accept the bill in the form in which it had been passed by the House. Mr. Ewing's main plea to the Senate Committee was for a bill which would end the confusion surrounding prescription drugs. He expressed the belief that the Humphrey bill was the best way in which to accomplish this result. However, he said that H. R. 3298, in the form in which it passed the House, would be a distinct improvement over the present law even though, in his opinion, it would be less effective in protecting the public than S. 1186.

The situation as it unfolded at the Senate Committee was quite different than it was a short while back when the House reported the bill out in its most objectionable form by a vote of 19 to 4. The really objectionable feature of the bill—the provision for an administrative definition of drugs restricted to prescription sales—was being insisted upon as essential only by the FDA as represented at the hearing by Deputy Commissioner of Food and Drugs George P. Larrick. And even his superior, the top man in the Federal Security Administration, is not holding out for this provision, although he says that he would prefer it. And furthermore, the American Medical Association is on the side of the drug industry in this fight, being strongly opposed to the administrative definition of drugs restricted to prescription sales.

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The Necessity for Research

(*Continued from page 473*)

products of various other types are discovered to control certain presently uncontrollable diseases, the antibiotic enthusiasists will keep right on researching for antibiotics for these same diseases in the belief that an antibiotic can accomplish the control better and cheaper.

Then there is the field of steroid hormones which is just beginning to unfold. Here we see intensive and expensive research and development taking place following the discovery that cortisone, or compound E, will relieve the suffering from rheumatoid arthritis if taken constantly, and will also cure a large number of diseases by treatment of comparatively short duration. Following the discovery of cortisone, ACTH came into the picture, followed by compound F, and there will certainly be more products of this type.

These products are at present most difficult and expensive to produce, but it is certain that, given time, they will be freely available at comparatively low prices. It must be realized that research into the steroid hormones, while dating back to some time during World War II, has really gotten well under way within the past two years or so. There are researchers in this branch of products who are just as enthusiastic in their belief that the steroid hormones are the drugs of the future for the control of all or most of man's ailments as are the researchers in the antibiotic field. There are some who express the belief that an entire new concept of medicine is to be evolved based on the glands and their secretions, and they visualize an entire list of specifics based on steroid hormone chemistry.

At the present time the only products of any consequence in this category of drug products which have been evaluated clinically are cortisone and ACTH. Sufficient compound F is now claimed to be available to clinically evaluate this product. Compound F is said to be one of the natural secretions of the pituitary gland, and the main one at that. There are claims made that it is superior to cortisone, but this will not be proven until the clinical investigations are completed. Side effects seem to be the great stumbling block to eventual widespread use of the presently available products in this category, but there appears to be no doubt that research will eventually produce products of this class in which the side effects will be of minor consideration. And although research at the present time being conducted into this class of products is directed mainly toward producing the already known products in greater quantities and at lower costs, this research will eventually turn almost completely toward the development of modification of these products so as to eliminate the present danger from their use. It is the history of almost any class of drug products that the first ones to make their appearance have considerable undesirable side-effects. However, within a comparatively short time, products are modified in chemical composition so

(*Continued on page 539*)

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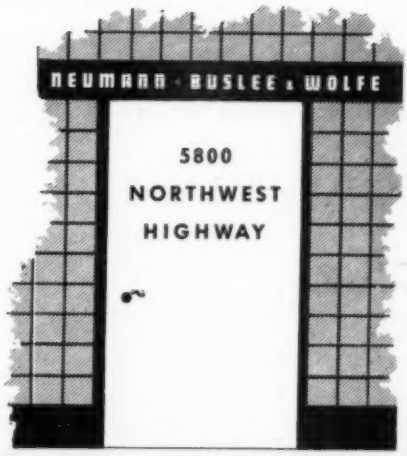

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MODERN COSMETICS, published by the Drug & Cosmetic Industry, was the first book on the formulation and manufacturing procedure of cosmetics to be published in America. It was an immediate success. In two previous editions eight thousand copies were sold in America and in forty-two foreign countries.

The Second Edition of MODERN COSMETICS has been out of print for three years. During that time we have received more that a thousand inquiries for this work. But rather than bring out a hurry-up job to meet the urgent demand we decided to wait.

E. G. Thomssen, B.S., A.M., Ph.D., Chemical Consultant, Author of "Soap Making Manual," "Modern Soap Making," and well known contributor to Technical literature, was engaged to completely rewrite this new Third Edition—to bring to it all the new developments of the past ten years in manufacturing instructions, materials, and formulas.

To those who have made MODERN COSMETICS their handbook we say—this new edition will be infinitely more useful to you, because of the scope of new material, new tested formulas, and the correction and modernization of the procedure in formulation.

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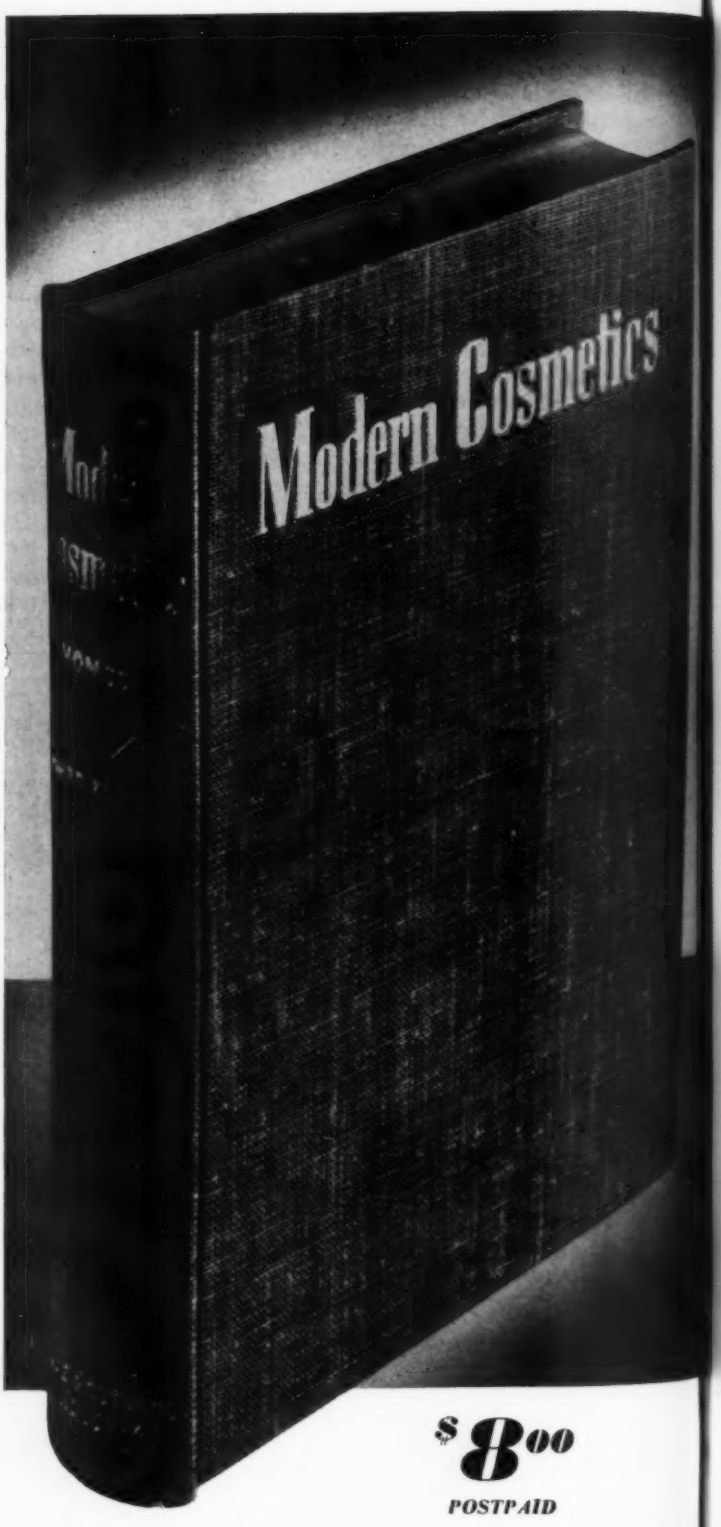

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The Necessity for Research

(*Continued from page 537*)

that these side-effects are minimized or eliminated altogether. As a recent example of this sort of thing compare the original sulfanilamide with the sulfa preparations available today.

Apart from these two important categories of drug products which are being investigated most intensively, the research laboratories of other companies are placing much emphasis on the development of still more products which are neither antibiotics or steroid hormones, and which are designed to control conditions which, thus far, are uncontrollable by any type of product now on the market. The development of the antihistaminics represented the sort of thing which results from research of this type. These are important products, first produced in Europe, which control certain abnormal conditions of individuals through the almost complete relief of uncomfortable symptoms which symptoms are the main manifestation of the condition from which the person is suffering. These products have also proven most helpful in eliminating certain side-effects of some new drugs, making the use of these drugs to attack serious disease more satisfactory.

Other manufacturers, through their research laboratories, have produced products for sorts of diseases, both serious and minor in nature, which are replacing a host of products which have long been marketed by numerous drug manufacturing establishments for certain conditions. The development of Banthine by Searle for treatment of peptic ulcer is a case in point. The field is still a wide one and it is full of opportunities. Many people imagine that through research, a drug firm should turn up with a product which will sell at a volume of 50 to 100 million dollars within a few years of its introduction which has been the case with aureomycin and terramycin. However, these two discoveries are most unusual and are, to use the opinion expressed by Abbott Laboratories in regard to the search for a new antibiotic, like hitting the jack-pot when playing a slot machine.

The need for new and better drugs is still very real. Every day one meets people suffering from ailments which do not respond satisfactorily to any known drug or combination of drugs. Also people are dying every day before what would be considered "their time." Even though the developments of recent years might make it appear that the bloom has been taken off the rose, it would rather seem that the door has only been opened wide enough for us to get a slight glimpse of the tremendous possibilities of research into therapy by means of drugs. The industry still has a long way to go and those who are not on their toes searching for new things will soon learn that the discoveries of today have been eclipsed by the discoveries of tomorrow. As Mr. McKeen expresses it, work to put yourself out of business, or the other fellow will. In other words, every drug manufacturer in business today must strive his utmost to discover new product which will make ob-

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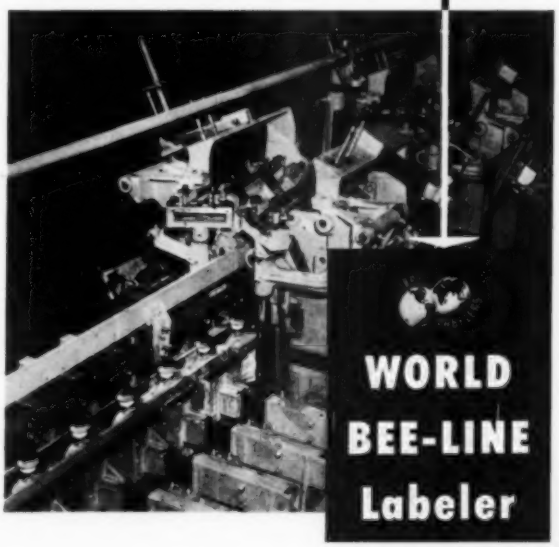
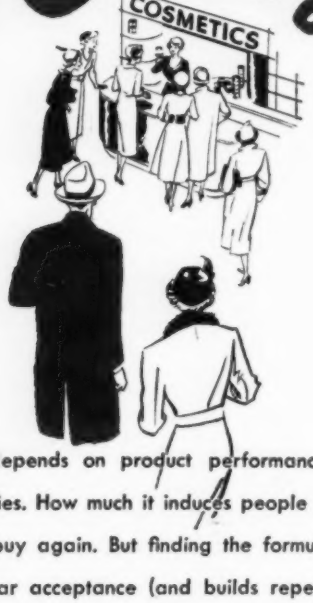


WHAT MAKES A PRODUCT

Go Over?



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Lilly Surveys The Druggist

(Continued from page 461)

still lower at 7.9 per cent. In 1939 and other years before the war this figure ranged from 20 to 25 per cent. However, even today, in newly opened or reopened drug stores, these prewar averages of 20 to 25 per cent are again to be recorded.

Some conclusions of the survey are:

1. The ratio of current assets to current liabilities was 4.6 on December 31, 1950, compared with 5.1 at the end of the preceding year.

2. Accounts payable are up. At the end of 1950, they averaged 24 days' purchases. In 1948 and 1949, accounts payable averaged 23 days' purchases, and in 1947, they averaged only 19 days.

3. Accounts receivable are up from six days' total sales in 1947 to eight days' sales in 1948, to 10 days' sales in 1949, and to 11 days' sales in 1950.

4. In the 112 drug stores that reported a sales decline, the average drop was 4.2 per cent, but this 4.2 per cent decrease cut net profit 25.5 per cent.

5. The average price per prescription and the percentage of prescription sales to total sales have increased steadily during the past decade:

Year	*% Prescrip. Sales to Total Sales*	*Average Price Per Prescrip.*
1942	12.0%	$0.99
1943	13.4	1.06
1944	15.6	1.10
1945	14.2	1.20
1946	15.8	1.33
1947	16.6	1.41
1948	18.8	1.51
1949	19.0	1.60
1950	20.4	1.77

6. The number of refilled prescriptions averages 40 per cent of the total number of prescriptions filled.

Pharmaceutical Pricing

(Continued from page 471)

tained over a long period of time, create for their companies. And this ill-will is something that cannot be erased from some people's minds despite all the advertising and public relations programs carried on by these companies. Strictly speaking, the pharmaceutical manufacturers have no direct contact with the public at large so there is really no way by which they can properly overcome public reactions of this sort. We remember distinctly conversations which we had with several people that they had used a certain specialty antibiotic either for themselves or other members of their family. All of these people, without exception, told us of the huge amount of money which they spent for the drug—$30 or $60—and that it had cost them one dollar a capsule. When we mentioned this to an

official of the company making the preparation, he asked, "But think of what the product did for them, did they tell you that?" Our answer was that no mention was made of what the preparation had accomplished, only the high cost stuck in the minds of these people, and that was all they talked about. Reactions of this sort certainly did not cause this company to rate very highly in the estimation of these people.

However, ever since the development of antibiotics brought into the industry as producers of finished pharmaceutical preparations houses which were, for many years, suppliers to pharmaceutical manufacturers of chemicals, vitamins, and other ingredients of the finished preparations of these pharmaceutical manufacturers, a change has been apparent. And because of the fact that the Government demanded that many of these chemical and other manufacturers join in the wartime effort to bring about large scale production of penicillin, and some other drugs, these people became manufacturers of finished pharmaceuticals, principally in the antibiotic category. And when, following the war, when the pharmaceutical manufacturers whom some of these companies had supplied, went into the manufacture of these products, and the pharmaceutical industry quite generally expanded into the manufacture of the newer, and some older, chemicals used in their products, the chemical or antibiotic manufacturers started selling finished preparations in competition with the long established pharmaceutical manufacturing houses.

In several instances the basic policies and manner of thinking of these houses were applied immediately to the new divisions of these companies. And action was engaged in, as it was shortly after the war with regard to penicillin, which many drug manufacturers could not comprehend as being sound business policy. This action consisted of cutting the prices of new preparations, when savings in costs were realized, even though the manufacturers involved could not, at the time the prices were cut, hope to supply the existing demand. This policy is still being carried out, a particular instance being the action of Merck & Co. with regard to cortisone. Cortisone has been cut during a period of less than two years, from a price of $200 per gram for investigative purposes, to a current level of about $16.50 per gram. And this has been done despite the fact that Merck is producing sufficient cortisone for only 90,000 cases of rheumatoid arthritis, while there upwards of 2 million such cases in the country. Merck's present plans call for doubling present production by the end of 1952, but then the company will only have cortisone sufficient to treat 180,000 of the over 2 million cases in existence. Several other manufacturers are working on plans to produce cortisone and related steroid hormones that might have similar therapeutic properties, and some of these manufacturers are already in the market in a limited way. However, any attempt to enter the market now will have to be done at the low prices now prevailing, and there is no way of

(*Continued on page 543*)

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Pharmaceutical Pricing

(*Continued from page 541*)

telling how much lower these prices will go as intensive research into production methods begins to bear fruit.

Another instance is the specialty antibiotics which exhibit a broad spectrum against both Gram-positive and Gram-negative bacteria. The dollar volume of these products has expanded to almost fantastic figures. When there were only two of these products available a price cut of moderate dimensions was made after a time. Then a third one appeared, and another price cut was inaugurated. Now with no new one appearing, Chas. Pfizer & Co. has announced a cut in price of from 15 to 40 per cent on the main product of the company, terramycin. Pfizer coupled this announcement with the announcement of the doubling of plant capacity for the production of this product. Thus Pfizer, also, follows this traditional policy of cutting prices when possible and thus passing on to the users of their product the savings realized through greater volume. Full well do Pfizer, Merck, and similarly-minded companies know that the passing on of these savings in the way of price reductions, causes still more of their products to be used In the business of thus selling products which are used for the maintenance of health and the control of disease, there is more than a monetary instinct behind this manner of thinking. The people directing these companies know that when they spread the use of their products by lowering of prices, they cause more people to benefit from the use of these products, while at the same time they make their own positions as producers of these products more secure. In addition to this they build up their own reputations with the medical profession, public institutions and other important users, and with the public to the end that any future products which they might desire to have investigated or marketed will be very well received.

Suntan Preparations

(*Continued from page 463*)

any statistics showing the relative popularities of these different classifications, I would be inclined to favor the emulsion.

Incorporation in the emulsion may be accomplished by the usual methods. I personally favor the types which would contain a minimum of 25 per cent of oil incorporated into the product because of the protection against water this offers. The emulsifiers should be used in the smallest possible concentrations so that the oils may not be easly re-emulsified. I believe also that the use of soap as an emulsifier must be dependent on the sun screening agency chosen, since many of these and one of compounds listed may be solubilized by the addition of alkali. Use of quaternary ammonium compounds in conjunction with some of these agencies seems indicated, because of their innate propensity of being substantive to the skin and therefore less likely to contribute to their removal when subjected to water.

KOMMON SCENTS!

Congressional economy in fighting world Communism is getting more applause from the Kremlin than the White House.

•

On one hand, frugal Congressmen say this nation is practically bankrupt, its citizens already weighed down by oppressive taxes and high living costs. On the other, they scream we must protect our free institutions and abundant life from Red tyranny and poverty.

•

Latest bit of legislative genius is exercised in whittling down Marshall Plan funds. The motto of some legislators, who don't seem to have wiped last campaign's mud out of their eyes, appears to be:
"We kin lick Communists all over the world, even if we breed 'em ourselves."

•

Recurrent proposals to reduce our armaments program also add to the public confusion and Russian delight. Our military experts scream fruitlessly that an enemy attack can be repulsed more effectively from valiants at Fort Bragg than a vault at Fort Knox.

•

The President is justifiably worried. Unless Congress provides money for a competent Army the Defense Department may have to treasure the active service of General Harry Vaughan. That would kinda put us in the position of fighting Russian tanks with American refrigerators

•

Only Senator Joe McCarthy really understands the economics of battle. He counts it a dollar saved when he confines each speech to Senate immunity from costly libel and slander suits.

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In this latter case, however, the manufacturer should be sure that there is no possible incompatibility between the quaternary and any of the other components of the product.

Several products have appeared on the market containing an insect repellent in addition to the sun screening agency. The observations made on the sun screening agencies as such are applicable as well to the mixture. By incorporation in an emulsion the relatively large amount of insect repellent necessary for good functioning could be used as the oil and water barricade without any large reinforcement of other oils.

Report on Vanilla

(Continued from page 465)

ready to pick. Then they have to go through a 4-month process of alternate curing and sweating, with exposure to the sun by day and storage in air-tight containers by night. This is followed by two months of drying. Finally the beans are ready for shipment, at least three years after the grower begins tending the neglected vines and planting new ones.

In reviewing imports into the United States, which consumes 75 per cent of all vanilla beans, it is evident that vanilla consumption here has not kept up with the increase in population. Twenty-six years ago, in 1925, America imported 945,572 pounds of beans; in 1930, 1,232,125, and in 1940, 1,309,854 pounds. In no year since that time has the figure been larger than 1,589,031 (1945) except last year when it exceeded 2,000,000 pounds—and that was abnormal.

The vanilla industry is aware of this discrepancy between per capita consumption and population increase and realizes it cannot be attributed entirely to the vascillating production figures at the vanilla sources. There is another, more important cause—the rapidly growing vanillin industry.

While some of the vanilla beans imported by the United States are ground into powder and put in an alcohol-and-water mixture to form the vanilla extract sold at the retail level, most of the beans are bought by chocolate manufacturers, confectioners, bakers, and the ice cream industry. Vanillin is important not only in flavoring, but also in the perfume and cosmetic trades. During the war when both industries were hard hit by shortages, the availability of vanillin helped extend the popularity of the vanilla flavor into fields in which it had never before been used. It also helped natural vanilla sustain its market, and will probably help promote its wider use in the future.

Vanillin appears naturally in the vanilla bean, along with other important aromatic constituents. The composition of all these component parts, not just the vanillin by itself, imparts that unparalleled taste to the vanilla bean. Chemically pure vanillin is obtained from guaiacol of coal-tar origin, from eugenol of cloves (the least important source), and from lignin as a by-product of wood pulp in which it appears naturally. This vanillin contains no impurities and therefore does not have the delicate taste of natural

vanilla. Nevertheless, its use is becoming more widespread each year, as testified by the following domestic production figures: The U. S. produced 281,694 pounds in 1928; 337,083 in 1929; 296,161 in 1930; 608,614 in 1939; 576,708 in 1940; 856,099 in 1949; and 964,200 in 1950. The price decreased from $6.23 a pound in 1929 to $3.25 in 1951. Prior to 1929 it at one time was sold by the ounce because of its extreme costliness.

While the vanilla bean industry need not fear that pure vanilla will be supplanted by vanillin, it should be careful not to underestimate the younger industry's increasing competition. Judging from the greater use of both products, there is ample room for expansion in each case, and both products are necessary to each other. Without vanillin, the price of the vanilla bean would be prohibitive, since there are not enough vanilla beans produced to satisfy the U. S. demand.

Prescription Business

(Continued from page 467)

Note that the leading therapeutic classifications in terms of prescription frequency are for the greater part the most heavily promoted. It is also significant, but not shown here, that the leading brands in each product category receive month in and month out, the most intensive promotional aid. Thus, we can conclude that there is a real relationship between a product's prescription volume and frequency of promotion.

Stocking Tips

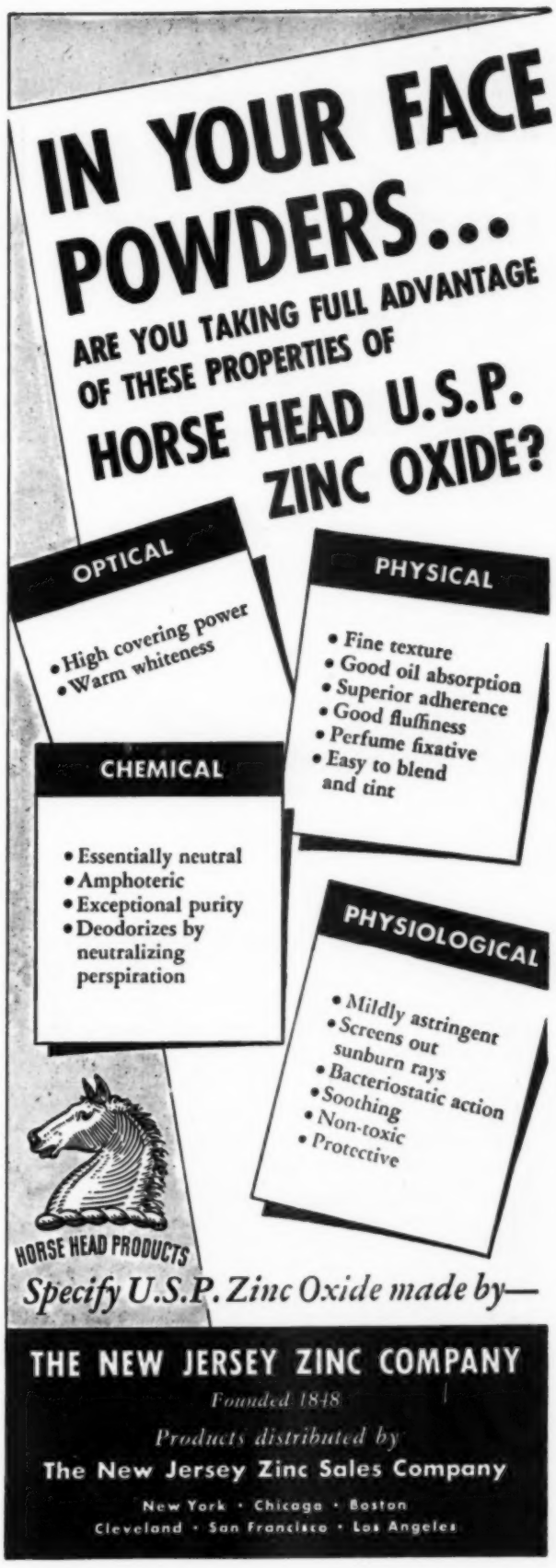
It would appear evident that a good rule-of-thumb for druggists to plan pharmaceutical specialty product purchases is to learn from each manufacturer, or his representative, the details concerning just how much effort is to be placed behind each new specialty product.

Another criteria could be the past performance of a particular company. If the detail support is generally poor in a druggist's locality and the promotional effort is infrequent, chances are the products should be stocked sparingly or not at all. This is especially so in those cases where the only incentive to buy is a special price, or a bonus goods deal. We recently conducted a study of drug store inventories and were concerned to see the large amounts of merchandise purchased on the basis of bonus goods, without due regard for the fact that many of the products showed slow turnover, and were tying up limited capital that could have been used to greater advantage in building up stocks of non-bonus products which had higher turnover and greater profits.

Newer Fungicidal Products

(Continued from page 469)

like salicylic acid, benzoic acid, sulfur, chrysarobin, thymol, iodine, resorcinol, mercury salts, coal tar, and the aniline dyes such as fuchsin and gentian violet.[10-11] Of course, many of these agents are still extensively prescribed, but attempts have been made to improve their effectiveness and acceptance. Thus ointments



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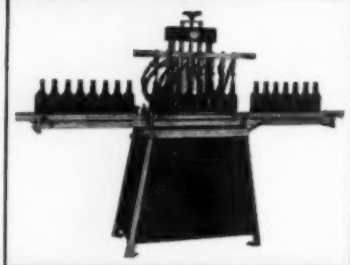

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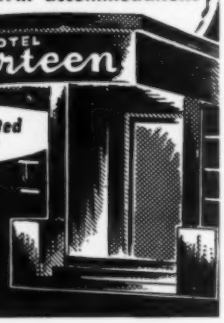

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are made with the newer emulsifying bases; the resulting products being cleaner to use and the contained medicaments more actively available.[12]

There also appears to be a trend toward the wider use of liquid preparations. These generally consist of volatile vehicles with low surface tension to facilitate the spreading and penetration of the active agents.[13] One preparation of this kind which depends on the keratolytic and antifungal action of salicylic acid, is made from:

Salicylic acid	**10 Gm.**
Acetone	**33 cc.**
Ethyl alcohol, 85%	**33 cc.**
Glycerine	**33 cc.**

When tried on about 50 cases of epidermophytosis, the results were found[14] to be "uniformly successful." Mopping the infected areas with this solution resulted in prompt relief of itching. More than half the patients were completely healed after one application and all were healed after two or three applications at five- to seven-day intervals.

Despite the availability of these older materials, research workers have continued to look for antifungal agents with such characteristics as low toxicity, low sensitizing index, rapid effectiveness, ease of application, and cosmetic acceptability.[15] The search for suitable agents has been facilitated by new technics such as the method of "paired comparisons." In this procedure, the medicaments under investigation are evaluated rapidly and accurately by applying them on symetrically situated areas of the skin of the same individual.[16]

As a result of such investigations a host of new, powerful and comparatively nonirritating fungicides have been added to the dermatological armamentarium.[17] Prominent among these newer agents are several natural antifungal substances which are normally found in freshly secreted sweat. It was back in 1938 that Peck and Rosenfeld[18] called attention to the fungicidal powers of certain fatty acids and their salts, as contained in sweat. Subsequent extensive studies showed that undecylenic, propionic and caprylic acids and their salts were the most effective of these compounds.[19]

Products based on these materials have found extensive use in the treatment of fungous infections of the feet. In addition, they are of value in such infections elsewhere on the body. Fox and Shields,[5] for example, in discussing the treatment of tinea cruris, state that undecylenic and propionic acid ointments are very useful in the acute stage and are less likely to irritate. Hopkins and his colleagues[20] found that the percentage of clinical clearing in dermatophytosis of the groin under propionic acid was somewhat higher than that obtained with undecylenic acid. The propionic acid ointment was well tolerated on the groin. They also observed that in cases of dermatophytosis of the body, undecylenic acid appears to have a specific action because the lesions often faded and disappeared without the marked desquamation associated with treatment by most other fungicides.

Preparations based on these fatty acids and their derivatives have also found use in the treatment of ringworm of the scalp, a resistant condition generally seen in children. As explained by Holland,[21] persons over the age of 15 years are almost immune to tinea capitis because of the higher concentration of fungistatic fatty acids in the sebaceous secretion of their scalps. Interesting in this connection is Carrick's[22] report that 54 of 55 children were completely cured of tinea capitis due to Microsporan andouini after persistent treatment with a zinc undecylenate-undecylenic acid ointment.

The evidence indicates that undecylenic acid and its derivatives are the most useful of the antifungal fatty acids. Thus, undecylenic acid was the chief active ingredient of the U. S. Army Fungicidal Ointment. Made available in large quantities for use by medical officers throughout the world, it consised of:

Undecylenic acid	**5.0 parts**
Triethanolamine	**3.0 "**
Methyl cellulose	**2.0 "**
Propylene glycol	**23.0 "**
Zinc stearate	**13.0 "**
Carbowax 1500*	**55.0 "**

*Carbide & Carbon Chemicals Corp., New York.

In discussing their field trial of this ointment, Sullivan and Fishbein[23] remarked that its release toward the latter part of the war probably prevented many cases of "over treatment" dermatitis.

In the studies made by Hopkins and his associates,[20] the high percentage of effectiveness and low incidence of irritation indicated that undecylenic acid was the best of the fungicides tested for the routine treatment of subacute cases. In balancing effectiveness against irritation, the percentage figures were best for an ointment made from:

Undecylenic acid	**5.0 per cent**
Triethenolamine	**3.0 " "**
Zinc peroxide	**10.0 " "**
Carbowax base, to make	**100.0 " "**

They noted, however, that solutions, such as the following, seemed more effective in noninflamed and in chronic cases and have obvious advantages in the treatment of fungous infections of the nails and scalp:

Undecylenic acid	**5.0 per cent**
Triethanolamine	**3.0 " "**
Alcohol	**62.0 " "**
Water, to make	**100.0 " "**

Using their "paired comparison" method, Sulzberger and Kanof[16,24] have found that combinations of undecylenic acid and zinc undecylenate are especially effective in the prevention of fungous infections of the feet. Thus, in one large clinical study, the prophylactic use of an undecylenic acid-zinc undecylenate powder was found to reduce the incidence of dermatophytosis by 85 per cent. In their opinion such a

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powder provides "the most effective, practical and acceptable" of the preparations which they investigated for use in the prophylaxis of the foot condition. When it came to treatment of infected cases, undecylenate preparations also noted high. However, there was no significant difference between the the therapeutic efficacy of a powder and an ointment.

The powder used in these studies, containing a coloring agent to facilitate the tests, was made as follows:

Zinc undecylenate	**20.0 per cent**
Talc	**76.0 " "**
Undecylenic acid	**2.0 " "**
Dibenzo-thio-indigo (red)	**2.0 " "**

The pigmented ointment was made from:

Undecylenic acid	**5.0 per cent**
Triethanolamine	**3.0 " "**
Zinc undecylenate	**18.0 " "**
Propylene glycol	**10.0 " "**
Carbowax 1500	**19.0 " "**
Carbowax 4000	**29.6 " "**
Water, distilled	**15.0 " "**
Dibenzo-thio-indigo (red)	**0.4 " "**

A very similar ointment and powder, both of them accepted by the council on Pharmacy and Chemistry of the A. M. A.,[25] are available commercially. These preparations, as well as a council-accepted[26] solution of undecylenic acid, have been subjected to extensive clinical trials.[23,27,28] The results indicate a high proportion of favorable results with a good rating for freedom from irritation.

The status of these substances is also reflected in the fact that they are now members of the official drug family, having been included in the latest edition of the National Formulary. This text also includes the formula for the compound Undecylenic Acid Ointment, which consists of:

Undecylenic acid	**5.0 per cent**
Zinc undecylenate	**20.0 " "**
Polyethylene glycol ointment, U. S. P.	**75.0 " "**

Salts other than zinc undecylenate may be used in the formulation of fungicidal products. Copper undecylenate, for example, is the active ingredient in a series of antifungal proprietary products, including a liquid, ointment and powder. One group of workers[29] successfully employed a liquid containing 10 per cent of copper undecylenate, 5 per cent undecylenic acid, plus 1 per cent of a wetting agent, in a solvent, for the local treatment of ringworm of the scalp. Others[30] have recommended the use of 10 per cent of copper undecylenate in a carbowax base for the therapy of this condition.

Sometimes because of associated pyogenic infection, it is desirable to combine an antibacterial agent with an antifungal agent. As shown in the following formula,[19] undecylenic acid may be used in this way:

Undecylenic acid	**5.0 parts**

Triethanolamine	3.0 parts
Acriflavine, neutral	3.0 "
Water	10.0 "
Triacetin	10.0 "
Propylene glycol	12.0 "
Carbowax 1500	10.0 "
Carbowax 4000	50.0 "

Propionic acid and its salts are also important antifungal components of sweat. Sodium propionate, which is official in the N. F. IX, finds industrial employment in dough mixes to retard the molding of baked goods. It is a useful ingredient of fungicidal preparations, especially those for treating athlete's foot, because it has both fungicidal and antibacterial action. It is therefore useful in cases where secondary bacterial invaders may complicate cases of ringworm.[31]

Keeney and his associates[32] reported good results with a propionate-propionic acid ointment in cases of tinea pedis. In later studies, Hopkins and his colleagues[20] found that propionic acid gave an all-over percentage of satisfactory results lower than did undecylenic acid. However, it seemed to approximate the latter in clinical effectiveness. Indeed, in tinea cruris, the results with propionic acid were even better than those obtained with undecylenic acid.

Various ointments were used by these investigators and several proprietary products are on the market. One typical formula for a compound propionate ointment[33] is given as follows:

Sodium propionate	16.4 Gm.
Propionic acid	3.6 Gm.
N-Proponol	10.0 Gm.
Propylene glycol	5.0 Gm.
Zinc stearate	5.0 Gm.
Carbowax 4000	35.0 Gm.
Distilled water, to make	100.0 Gm.

A formula for a sodium propionate lotion is given in a manual[34] of clinical mycology as follows:

Sodium propionate	4.92 Gm.
Propionic acid	0.72 Gm.
N-Proponol (10%)	60.00 cc.

The same source describes a suitable antifungal dusting powder as consisting of 15 per cent of calcium propionate in talcum powder.

The third important group of antifungal agents from sweat comprise the caprylates. Clinical tests[35] indicate that an ointment containing 10 per cent of sodium caprylate is useful in the treatment of dermatomycosis of the feet. Particularly significant, however, was the observation that the daily use of this ointment did not produce any irritation or sensitization, even when continued for six weeks. A combination of sodium caprylate and zinc caprylate, called caprylic compound, has been found useful for the prevention and treatment of dermatophytosis pedis and for the control of other superficial fungous infections of the skin and accessible mucous membranes. The compound

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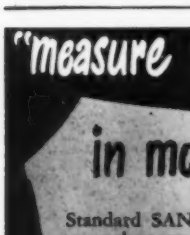

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is used in the preparation of a series of proprietary products, such as an ointment, a powder and a vaginal suppository.[25]

Propionate-caprylate mixtures form the basis for another line of proprietary fungicidal products.[36,37,38] Tests with such combinations indicate a high order of effectiveness with a low incidence of undesired side-effects.

Mercury compounds, like ammoniated mercury, have long been used in the treatment of fungous infections. During recent years, attention has been focused on the fungicidal properties of phenylmercuric salts. In discussing the usefulness of these compounds, Hopkins[31] points out that a 1:25,000 solution of phenylmercuric nitrate has a marked bacteriostatic effect and concentrations of about 1:1000 have a powerful fungicidal action. Noting that there is little risk of irritation from such solutions, he cites work which indicates that solutions containing up to 0.25 per cent of phenylmercuric salts may be used without causing damage to healthy tissues. The mercury salts may be applied in the formof jellies, creams or lotions. Thus, using a water-in-oil enmulsion base, such as one of the wool alcohol or cholesterol absorption bases, a fungicidal cream may be made from:

Phenylmercuric acetate	**0.125 per cent**
Wool alcohols	**3.000 " "**
Soft paraffin	**8.500 " "**
Hard paraffin	**3.500 " "**
Liquid paraffin	**30.000 " "**
Water, to make	**100.000 " "**

In England, in studies of the treatment of ringworm of the scalp, Brain and his Colleagues[39] reported that the preparation giving the best results consisted of 0.5 per cent phenylmercuric nitrate in a base composed of Carbowax 1500 and polyoxyethylene sorbitan monolaurate (Tween 20, made by Atlas Powder Co., Wilmington, Del.). The pH of the base was adjusted to between 4 and 5 by the addition of a solution of citric acid and sodium propionate. Earlier, in considering the treatment of fungous diseases of the feet, Goldman and his associates[40] had recommended a 1:500 solution of phenylmercuric borate with 1 per cent boric acid in a vanishing cream base for topical therapy.

Representing something of a departure in fungicidal preparations is a proprietary spray containing 0.666 per cent of phenylmercuric chloride and 3 per cent of Carbowax in ethyl chloride. Ethyl chloride is itself a useful fungicide,[19] but in this product also serves as a vehicle and propellent to leave, on evaporation, a thin protective film containing the active agent.

This, of course, is the principle that is employed in the manufacture of modern convenient pressure-propelled products. A number of organizations in this field have been working on the formulation of fungicidal preparations for dispensing in aerosol packages. According to one recent report[41] a product of this sort is being test-marketed prior to national distribution. Packaged in an aerosol container which dispenses the

material as a fine mist, the active ingredients are undecylenic acid, dihydroxydichlor-diphenylmethane, trimethyl cyclohexanol salicylic acid and camphor. The product is used both to prevent and treat athlete's foot. It is also recommended for the relief of tired, aching feet and as a deodorant. No doubt, other products of this class are in the offing.

Of course many compounds and combinations are finding employment in newer fungicidal products. Some are of industrial origin, having proved their worth for the prevention of rotting and molding. Salicylanilide, a textile mildew-proofing agent, is one such material. Schwartz, Robinson and Gant,[42] for example, found that the following solution, which is stainless and easy and convenient to apply, provides an efficient topical preparation for the treatment of superficial mycoses, including tenia pedis and tinea cruris:

Salicylanilide	**5.0 per cent**
Trimethyl octadecyl ammonium pentochlorophenate (Hyamine 3258*)	**1.0 " "**
Isopropyl alcohol	**94.0 " "**

*Rohm & Haas, Philadelphia, Pa.

Schwartz and his collegues[42,43] also found the following ointment was effective in the treatment of epidemic ringworm of the scalp:

Salicylanilide	**5.0 per cent**
Cationic detergent (Hyamine 1622)	**1.0 " "**
Carbowax 1500	**94.0 " "**

Other tests[29,44,45] have confirmed the efficacy of salicylanilide ointments of this type and they have been recommended for[30,46] the treatment of ringworm of the scalp. A commercially available ointment containing salicylanilide (which is now an official N. F. material) plus undecylenic acid and zinc undecylenate is similarly useful in cases of tinia capitis. It is also effective in the treatment of superficial dermatomycosis.[25]

It is obviously impossible to cite all the newer compounds that are being used or tested for their fungicidal activity. Mention of a few, however, may indicate the trend. Thus, certain quaternary ammonium compounds are being employed because they have marked fungicidal and antiseptic qualities as well as wetting, penetrating and detergent properties. As indicated above, Schwartz and his coworkers[42] used such agents to improve the effectiveness of the salicylanilide preparations. In other work,[47] promising results in the treatment of tinea capitis were obtained with a preparation containing cetyl trimethyl ammonium pentachlorphenate as the active ingredient in a special vehicle. Combinations of this agent with undecylenic acid have also been studied.[48]

Rather interesting is Austen's[49] use of antihistaminic agents in the treatment of fungous infections. He gave the drugs by mouth to relieve the allergic manifestations of the infections. He also added one of these agents

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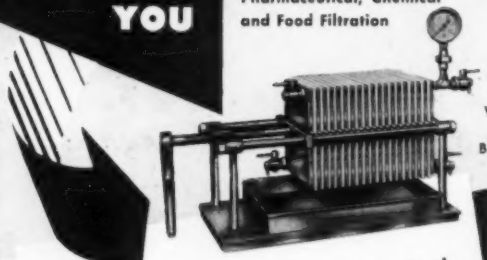

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to talc, using various concentrations ranging from 10 to 40 per cent. The stronger products were used as dusting powders in the treatment of fungus infections of the feet and the weaker ones for the prevention of the condition.

In view of the current interst in chlorophyll, mention should be made of Strickler's[50] use of this substance as a "catalyst and photosensitizer" in his preparation for treating tinea capitis. Essentially an iodine mixture in cottonseed oil, this topically applied preparation gave cures in 64 per cent of the cases.

A check of the technical and research literature indicates that some of the fungicidal or fungistatic substances that are or have been under investigation include: a series of fungicidal fatty acid esters,[51] salicil and related compounds,[52] metal derivatives of 3-pyridinethiol,[53-54] a series of thiocyanates,[55] certain acenaphthene derivatives,[56] and 2-dimethylamino-6-(beta-diethylamino)-benzothiazole.[15-57] This last is now being used as the chief active ingredient of a series of proprietary preparations. Of course, the patent literature[58-59] also offers its complement of newer antifungal preparations.

In these days of antibiotics, investigators have not overlooked the possibility that there might be agents of this kind with effectiveness against fungi. Work done by Hopkins and his coworkers[20] in 1946 indicated that, while some response was obtainable, none of the antibiotics tested by them showed any marked superiority to many familiar fungicides.

More recently, interest has been centered about a new antibiotic which is active against various saprophytic and pathogenic fungi.[60] Called fradicin, this antifungal agent was extracted by Swart, Romano and Waksman[61] while they were working with cultures of *Streptomyces fradiae* to prepare neomycin. Early work suggested its possible use in plant and animal husbandry and in certain limited fields of medicine.

In March 1951, Hickey and Hidy[62] described a crystalline substance, presumably fradicin, obtained from *Streptomyces fradiae*. They have determined some of the physical and chemical properties of the light greenish yellow crystalline product. Like Swart, Romano and Waksman, who worked with the amorphous material, they found that the crystalline substance had strong antifungal action at pH 7.0 and higher, but showed poor activity against bacteria. Its ability to inhibit certain pathogenic fungi was demonstrated *in vitro*. Acute toxicity tests on mice and skin irritation tests on rabbits were also made. Obviously much more work must be done to fully evaluate fradicin, the antifungal antibiotic.

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Patent Thoughts and Trends

(Continued from page 509)

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2,557,633—**Sharp & Dohme—Acetyl-sulfanilyl-s-Alkyl Isothioureas.**

2,557,655—**H. Hebo—Estrone-Cyclo-Ethanolamine.**

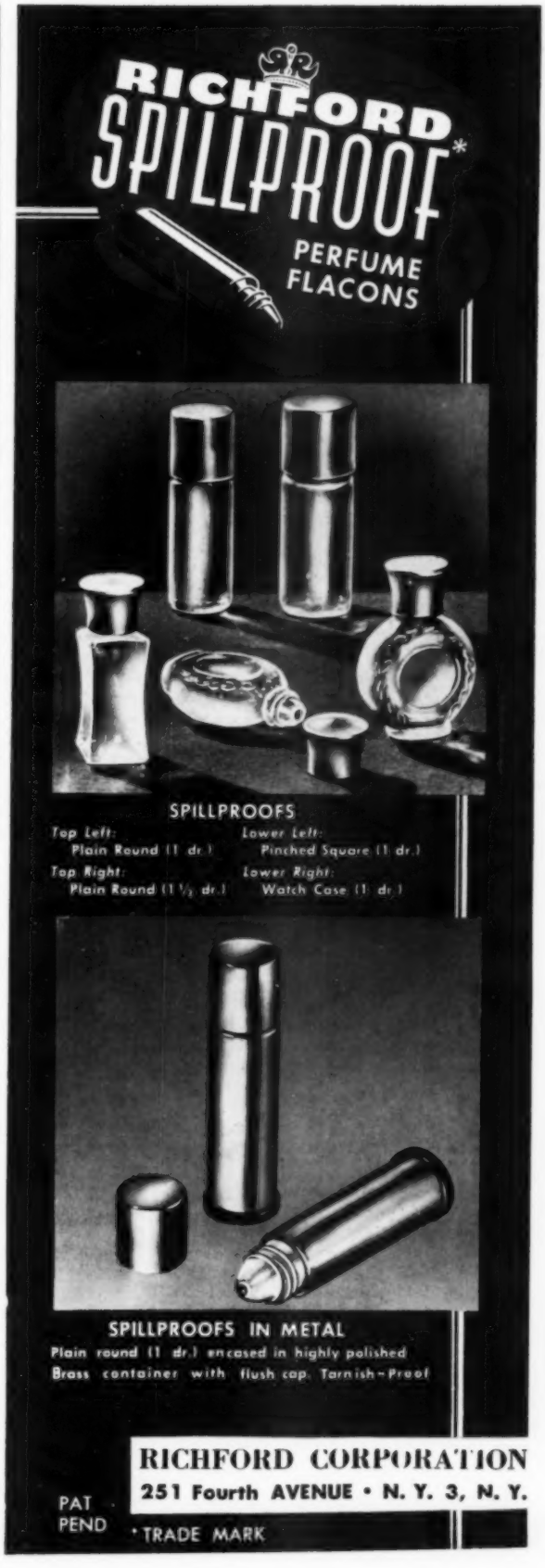
2,557,762—**Parke, Davis—Long Chain tertiary alkyl amine—Penicillin Salts.**

2,558,014—**Wyeth Piperazine Salts of Penicillin.**

2,558,020—**Schieffelin & Co.—Basic Esters of 2-Aryl-2-(1-Hydroxycyclohexy) Ethanoic Acid.**

2,558,146—**Upjohn—2-Isopropyl-methylamino—ethyl Ester of Phenylcyclopentylacetic Acid.**

2,558,711—**Upjohn—Pteroylglutamic Acid Compounds.**



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2,558,777—Schering—Halogenated Hydroxy-Stilbazoles.

2,558,784-6—Merck—Cyanopregnenes.

2,560,552—Hoffmann-LaRoche—1-Benzhydryl-3-Acylureas.

2,562,107—Parke, Davis—Derivatives of Organic Amino Alcohols and Methods for Obtaining the Same.

2,562,152—Commercial Solvents—Compound of Penicillin and Cobalt and Preparation Thereof.

2,562,194—The Glidden Co.—Aminomethyl-Keto-Steroids.

2,562,208—Schering Corporation—A fungistatic preparation comprising a vanishing cream composition containing from about 2 per cent to about 5 per cent of a zinc salt of beta-(p-chlorobenzoyl) acrylic acid.

2,562,351—G. D. Searle & Co.—Basic Esters of Cholanic and Ketocholanic Acids.

2,562,407-11—Eli Lilly & Co.—Cycloaliphatic Penicillins.

2,562,488—Bactericidal Research—Germicidal Reaction Products of Silver Salts and Monohydroxy-Monoamino Alkanes.

2,562,840—Eli Lilly & Co.—Vitamin Preparations.

2,563,070—The Chicago Medical School—Antidiabetic.

2,563,725—American Cyanamid — Phenosulfonamides.

2,563,743—Ralph L. Evans—1-Prolyl-1-Cysteinyl-1-Tyrosine.

2,564,505—Simon L. Ruskin—Boron Derivatives of Penicillin.

2,564,565—Merck—Penicillin Aluminum Alkoxides.

2,565,057—Burroughs Wellcome—Polymyxin Antibiotic.

2,565,402—Chas. Pfizer & Co.—Converting pseudostreptomycin to streptomycin.

2,565,503—Bristol Labs—Cycloalkylamine Salts of penicillin.

2,565,653—Squibb—Substantially Pure Dihydrostreptomycin-B Base.

2,566,038—Am. Cyanamid—Water-soluble Sulfonamides.

2,566,123—Abbott Labs—Stable Vitamin B_{12} solution.

2,566,132—Abbott Labs—Quaternary Compounds with 1,2,3,4-tetrahydroquinoline nucleus.

2,566,200—Commercial Solvents—Enteric Penicillin Tablets.

2,566,341,2—Upjohn—Steroid Thioesters.

2,566,358—Upjohn—Androgenic Compositions.

2,566,360—Schering—Aminoalkyl Ethers of Pyridyl Alkylene Aryl Compounds.

2,566,376—W. S. Merrell—B-tertiary aminoethanol Ethers of diaryl pyridyl carbinols.

2,567,245—Schering—Aryl—(2-Pyridyl)-Amino Alkanes.

(Continued on page 556)

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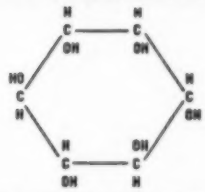

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Patent Thoughts and Trends

(Continued from page 554)

2,567,350—Parke, Davis—Omega-haloalkyl Benzhydryl Ethers.
2,567,404, 9—Colgate P-P—Stabilizing Fatty Acids.
2,567,546—Smith. Kline & French—3-Phenylphthalidyl-3-acetic acid.
2,567,679—Eli Lilly—9-Aminoacridine Salt of Penicillin in Injectable form.
2,567,778—Bristol Labs—Basic Ethers of Xylenols.
2,568,011—Winthrop-Stearns—Arylthioalkanoamides.
2,568,141-2—Wyeth—Glycinamides.
2,568,146—Solo Products Corp.—Hair Curler.
2,568,360—A. E. Staley Mfg. Co.—Penicillin Production.
2,568,462—Upjohn—Pteridine Derivative.
2,568,555—Parke, Davis—1-Nitrophenyl-2-Acylamino-1,3-Propandiol Acetals.
Copies of U. S. Patents may be obtained for 25c each by writing to the Commissioner of Patents, Washington 25, D. C.

Readers Questions

PRESERVATIVE FOR HAIR POMADE. What type of preservative would you recommend in a hair preparation such as a pomade containing lanolin, wax, petrolatum and oils? New Orleans.

I would suggest that about .02 per cent of propyl parahydroxybenzoate, officially known as Propylparaben U. S. P., will serve your purpose. This preservative is considered generally useful for employment in oily cosmetics.

HORMONE CREAMS: Please give us whatever information you may have on hormone creams. We are especially interested in the formulation of such products. New York City.

Considerable information on the status of these preparations appeared in the July 1949 issue of DRUG AND COSMETIC INDUSTRY. This article on hormone creams was reprinted in the "Drug and Cosmetic Review" for 1950-51, page 107. In general, most hormone creams consist of 7500 to 10,000 International Units of estrogen per ounce of cream.

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An emollient cream is generally employed as a vehicle for the hormone. Perhaps a base such as the following will give you a starting point in preparing a suitable cream:

Beeswax	**10.0**
Spermaceti	**3.0**
Cocoa butter	**5.0**
Lanolin	**6.0**
Olive oil	**30.0**
Mineral oil	**30.0**
Borax	**0.5**
Water	**15.0**

PRE-SHAVE LOTIONS FOR ELECTRIC RAZORS: Please tender a formula for essential ingredients of lotions to be used prior to shaving with an electric shaver, of which there are several on the market. Webster Groves.

There are several ways in which such preparations can be made but most of the simple ones are based upon the use of astringent lotions with volatile vehicles. The following formulas provide two typical examples of such astringent pre-shave lotions:

Alcohol	**50 per cent**
Glycerine	**5 " "**
Lactic acid	**2 " "**
Water	**43 " "**
Perfume	**sufficient**
Menthol	**0.1 per cent**
Zinc sulphocarbolate	**0.8 " "**
Camphor	**0.1 " "**
Alcohol	**40.0 " "**
Witch hazel	**59.0 " "**

Some of the newer lotions contain synthetic resins which stiffen the hairs of the beard prior to use of the electric shaver. It is my impression, however, that most of these are covered by patents.

DOUCHE POWDERS: I should like to secure information on methods for making douche powders. Any formulas would be greatly appreciated. Norfolk.

An astringent douche powder can be made along the following lines:

Thymol	**2.5 Gm.**
Copper sulfate	**20.0 Gm.**
Zinc sulfate	**20.0 Gm.**
Potassium aluminum sulfate, to make	**100.0 Gm.**

One teaspoonful per quart of warm water is used as an astringent douche.

Another type of douche powder, a so-called aromatic sodium borate douche powder, can be made from:

Menthol	**2.5 Gm.**
Camphor	**2.5 Gm.**
Methyl salicylate	**5.0 cc.**
Sodium bicarbonate	**45.0 Gm.**
Sodium borate, to make	**100.0 Gm.**

One teaspoonful in one quart of warm water as an alkaline cleansing vaginal douche.

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Atlas Powder Co. 424
Avon Products, Inc. 437

Baker Chemical Co., J. T. 494
Beauty Fashion 452
Benzol Products Company 548
Bush & Co., W. J. 557

Calco Chemical Division 445
Calif. Fruit Growers Ex. Insert facing 509
Calumet Manufacturing Co., Inc. 485
Camilli, Albert & Laloue, Inc. 557
Carr-Lowrey Glass Co. 482
Cavalla, Inc., A. 559
Chemo Puro Mfg. Corp. 559
Chemical Industries Exposition 541
Colton Company, Arthur 498-499
Columbia-Southern Chemical Corp. 429
Commercial Solvents Corp. 444
Continental Can Company 488
Corn Products Sales Company 555
Crown Cork & Seal Company 474
Crown Cork Specialty Corp. Insert facing 484

de Laire Division, Dodge & Olcott, Inc. 425
Devold Oil Co., Peder 549
Distillation Products, Inc. 441
Dodge & Olcott, Inc. 490
Dow Chemical Co. 431
du Pont de Nemours & Co., (Inc.) E. I. Insert facing 437
Durlin & Co. Insert facing 428

Economic Machinery Co., Div. of Geo. J. Meyer Manufacturing Co. 539
Emery Industries, Inc. 426
Ertel Engineering Corp. 548
Evans Chemicals, Ltd. 533

Fairmount Chemical Co., Inc. 556
Felton Chemical Co., Inc. 486
Firmenich & Co., Inc. Cover 4

Florasynth Labs., Inc. 449
French, Inc., Benj. 520
Fritzsche Brothers, Inc. Insert bet. 524-525

Gair Company, Inc., Robert 544
Givaudan-Delawanna, Inc. Insert bet. 428-429
Glycerine Producers' Assn. Insert facing 508
Goldschmidt Chem. Corp. 435
Greeff & Co., R. W. 552

Hercules Powder Company Insert facing 436
Heyden Chemical Corp. 439
Hinde & Dauch Paper Co. 434
Hoffmann-LaRoche, Inc. 526
Hormann & Co., F. R. 552
Horn, John 556
Hooker Electrochemical Co. 510
Hotel Fourteen 546
Huisking & Co., Inc., Chas. L. 549

Industrial Chemical Sales Cover 2
Innis-Speiden Company Insert facing 493
International Wax Refining Corp. 559

Kelton Cosmetics Co. 543
Kessler Chemical Co. 528
Kimble Glass Insert facing 485
Kohnstamm & Co., H. Insert facing 429
Kolar Laboratories, Inc. 540
Kolmar Laboratories 442

Leonhard Wax Co., Theodore 559
Lueders & Co., George 438

Magnus, Mabee & Reynard, Inc. 436
Mallinckrodt Chemical Wks. Insert facing 453
Merck & Co., Inc. 421
Metal Glass Products Co. 550
Michel & Co., Inc., M. 555
Milky Way Cosmetics 559
Mills Corp., Elmer E. Insert facing 476
Modern Chemical Specialties 542
Modern Cosmetics 538
Monsanto Chemical Company 447

National Carbide Die Co. 507
Naugatuck Aromatics 514
Neumann, Buslee & Wolfe, Inc. 537
New Jersey Zinc Co. 545
New York Quinine & Chemical Works, Inc. 443
Norda Essential Oil & Chemical Co., Inc. Insert facing 452

Old Empire Mfg. Chemists, Inc. 534
Owens-Illinois Glass Co. Insert facing 477 & 492

Packer Machinery Corp. 546
Parsons-Plymouth, Inc., M. W. 528
Penick & Co., S. B. 427
Pennsylvania Glass Products Co., Inc. 484
Pennsylvania Refining Co. 518
Perl Machine Mfg. Co. 555
Pfaltz & Bauer Co., Inc. 559
Pfizer & Co., Inc., Chas. 512
Pittsburgh Lectrodryer Corp. 506
Polak & Schwarz, Inc. 446
Polak's Frutal Works 428
Progressive Labelling Machine, Inc. 556
Pulverizing Machinery Company Insert facing 501

Reinitz Soap Corp. 547
Richford Corporation 553
Robinson Wagner Co., Inc. 433
Roubechez, Inc. 535
Roure-Dupont, Inc. 440

Santonin Company of America, Inc. 549
Scoville Manufacturing Company 483
Seeley & Co., Inc. 550
Solvay Sales Div., Allied Chemical & Dye Corp. 430
Standard Oil Company 423
Standard Pharmacal Company 554
Sterwin Chemical, Inc. 556
Stokes Machine Co., F. J. Insert facing 500
Stokes & Smith Co. 502
Strong Cobb & Co., Inc. 451
Superior Laboratories, Inc. 555
Synfleur Scientific Labs., Inc. 450
Syntomatic Corp. 522

Tablet Coating Book 448
Tamms Industries, Inc. 559
Thurston & Braidich 554
Tombarel Products Corp. 432
Trade-Mark Record Book 534

Ungerer & Co., Inc. Cover 3
U. S. Automatic Box Machy Co. 504
U. S. Bottlers Machinery Co. 551
U. S. Industrial Chemicals, Inc. Insert bet. 516-517

van-Ameringen-Haebler, Inc. Insert bet. 452-453
Verley & Company, Albert Insert bet. 444-445

Welch, Holme & Clark, Inc. 542
Whittaker, Clark & Daniels, Inc. 536
Will & Baumer Candle Co. 536
Witco Chemical Co. 560
Wisconsin Alumni Research Foundation 556
Wolf & Co., Jacques 534